To Renew a Nation
by E. D. Hirsch, Jr.

What Every American Needs to Know: About What Every American Needs to Know
Shared Knowledge
To Renew a Nation

E. D. Hirsch Jr.
This book is dedicated to

Jeff Litt
And other Core Knowledge pioneers—the hundreds of independent-minded teachers, parents, and writers, and the staff of the Core Knowledge Foundation, who together have made real headway in overcoming social disadvantage and creating competent, patriotic citizens.
It’s possible to imagine a world without nations. But, in the meantime, that world does not exist, and this world is a world of nations, which is why it’s important to understand what nations are and to imagine what they can be.

Jill Lepore, *This America*

A reading test is a knowledge test in disguise.

D. Willingham, *Why Don’t Students Like School?*
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Preface

Knowledge-Centered Schooling

The longest chapter in this book is an interview with two veteran teachers, Cathy Kinter and Michele Hudak, who have spent their professional lives in four different states and in regular public schools as well as in Core Knowledge public schools.

I reproduce the whole interview because their first-hand experience is authoritative and informative. It is also consistent with our current cognitive science knowledge regarding learning and literacy. They know both worlds at first hand: our regular public schools and Core Knowledge schools.

Ms Kinter and Dr. Hudak have fearlessly permitted me to print the transcript of their interview, thereby potentially courting the displeasure of administrators and professors who defend the status-quo ideas that dominate our schools and our teacher-training institutes. They report that the Core Knowledge system of teaching a core of the same subject matter in K-8 is far better than the “child-centered” status quo that supports an individualizing pedagogy and subject matter. The data strongly support their conclusions.

The 2,100 and more Core Knowledge elementary schools in the United States achieve superb, egalitarian results that are superior to the results of the 70,000 Non-Core Knowledge, “child-centered” public schools. The CK schools are also less expensive to operate since all the children use the very same, less costly books published by the non-profit Core Knowledge Foundation, many of which are also available for free download from https://www.coreknowledge.org/curriculum/. The shared knowledge approach achieves better results at lower cost.

To be both cheaper and better should be the end of the story.

But the “child-centered” establishment has successfully attacked the CK initiative (emanating from the non-profit Core Knowledge Foundation) as
being a “reactionary” and “conservative” initiative. They’d have a hard time proving that in court, given our longstanding liberal credentials, and those of the Core Knowledge teachers and principals devoted to the cause of equality.

They’d also have a hard time persuading the diverse Core Knowledge parents who are hugely proud of what their offspring accomplish and hugely disappointed when their child fails to win the massively oversubscribed Core Knowledge kindergarten lottery. The kindergarten lottery is the only way to enroll in a CK school since no child leaves, and parents who move to another part of town still have their children transported to the CK school!

Yet the “child-centered” theorists, who have dominated our education schools since the 1940s, label the Core Knowledge effort “conservative” and “reactionary.” On the contrary. In the current context, CK is a revolutionary movement! Moreover, there are liberal forces outside the world of education schools and traditional, for profit publishing houses that strongly support the Core Knowledge revolution—people who demand improved quality and greater fairness.

So, there is an enormous potential power for reform from other interest groups, besides the enthralled children themselves: pedagogues, parents, and patriots. The pupils delight in the stories and facts and in their mastery of the world’s best tales and most compelling histories. Parents and teachers are proud of their children’s knowledge and mastery; patriots are happy with Core Knowledge children’s knowledge of American democracy and its ideals, which leads to adults who are patriotic and engaged.

If those supporters can be organized, they will form a big, powerful interest group – especially if one includes devoted principals and teachers like Cathy and Michele. Such devoted teachers believe that their interests are children’s interests, and they will demand significant change when they observe the impact of shared knowledge on their young enthusiastic pupils.

Add to pupils, parents, and principals, the enthusiasm of the fourth p: patriots. They see the benefit to the nation of a highly literate citizenry that raises both national competence and national comity.

Lastly, a key interest group will be added when the message of Cathy and Michele sinks in more widely: state elected officials. If the general public
sees the results and gets behind the sweeping curricular changes that are needed, a majority of citizens will demand substantive curriculums that work, and governors and legislators will require a substantive curriculum. They will institute state tests that probe grade-by-grade knowledge.

Under our Constitution, the states have an obligation to educate their children. State legislatures and governors have a constitutional obligation to prepare competent American citizens. If the public demands it, they will do so.

The basic argument and claim of this book is that the key principle for improving American education and therewith American politics is the reality principle as represented by cognitive science. That principle argues that our poor performance in international educational comparisons (which place our fifteen year-olds at twenty-fifth among the nations in reading, math, and science) is not evidence of neglect or indifference, but of wrong theories.¹ The book provides evidence from cognitive science that in key respects we had sounder theories earlier in the twentieth century when our reading scores were higher in each demographic and economic category.

Talented students from low-literacy homes have been let down by their K-12 schooling. As things now stand, many twelfth graders attain verbal SAT scores that are too low to gain admission to good universities. As progressive education gradually took over our schooling after 1940, that inequity got progressively worse. Here’s the curve of our recent SAT-verbal scores before the College Board changed its tests in 1995.
This book will show how and why some enlightened elementary schools that have rejected “child-centered” schooling in favor of a carefully sequenced curriculum have erased the gap between the verbal scores of advantaged and disadvantaged students. *All* students, rich and poor, from shared-topic schools, make high marks on the verbal SAT. The most talented ones score very high, and gain admission to top universities.

If schools bring their conceptions into accord with reality (which here means into accord with cognitive science) we can reverse the SAT decline and help our kids bounce back from the learning deprivations of COVID.

If the message from cognitive science sinks in, our progress will reverse the curve and even move it up more sharply than we moved down. That result is bound to improve our fairness, our politics, and our pursuit of happiness:
PART I

Reversing Educational and National Decline
Chapter 1

The Slate and the Seedling; The Mirror and the Lamp

The chart of our decline in verbal SAT scores for college entrance traces the consequence of the elementary school revolution that started in the 1940s. In that decade our move from teacher-centered to child-centered education started off in a big way. From the 1940s to the 1960s there was a gradual movement of the classroom furniture from student desks facing the teacher, to scattered tables and moveable chairs, with the children facing each other.

There was also in the 1940s, a widely spread American sentiment that things were working out naturally in our favor. Our current feelings of national disunity and our debased politics contrast sharply with our earlier 1940s sense of unity and confidence. In that more confident mood, we started instituting naturalistic, child-centered education on a big scale.²

During the wartime 1940s, the United States had developed the atom bomb and had become the arsenal of democracy. Both History and Nature seemed on our side. It was then that American schooling departed from its intellectual roots in John Locke and the Enlightenment to adopt the Romantic approach to education.

The theory change that occurred is best understood by intellectual historians. They see in the twentieth century not only two world wars—in 1914-1918 and in 1939-1945—but also a gradual shift from the Enlightenment tradition in education to the Romantic tradition. One fine historian of the general subject, M. H. Abrams, published a famous book in 1963 entitled The Mirror and the Lamp. It described the literary shift from accurately mirroring the world as it is to illuminating the world with the lamp of one’s God-given individual genius.
In education, a comparable Romantic shift gradually occurred in our schools—as indicated by the gradual shift in our classroom furniture from children facing the teacher who mirrored cultural reality, to tables where children faced one another to enable their lamps to shine.

Our Enlightenment educational tradition had offered the child a direct, explicit induction into the language and the mores of national citizenship—a mirror. And a mirror is what is needed to master a national print language and earn high grades on the Verbal SAT.

Such shared knowledge is imparted most effectively through whole-class instruction in a sequence of commonly shared materials, not from helter-skelter child-chosen booklets from the classroom library. Since our children need to learn many of the same things to master a common language, whole-class instruction is by far the fairest and most effective way to teach children the shared national language with its shared background knowledge. To do so instills shared loyalty to American traditions and to fellow citizens.

Earlier, when our scores were higher, those desks were all in a row, and the teacher was the mirror and tour guide for our system of language, knowledge, and morality. The instruction held up a mirror for American citizenship. Our students’ reading scores were among the highest in the world. Paradoxically, the mastery of shared language in early grades enables an effective individuality later on, not to mention desirably high SAT scores.

The later Romantic tradition of schooling which began taking over our schools in the 1940s emphasized the “lamp” of the child’s innate, productive God-given nature. The romantic idea held that “the soul that rises with us, our life’s star had elsewhere had its setting and cometh from afar” and that “trailing clouds of glory do we come, from God who is our home.”

Our country had been founded on ideas from the European Enlightenment that had repudiated the older notion of innate ideas. Initially, we adopted the teaching of John Locke, who held that children are born not with a lamp but with a mirror—in his metaphor it was a “blank slate” ready to have inscribed the national language and culture. The blank slate is what teachers and pupils in earlier schooling wrote upon with chalk. (The one pictured here can be purchased at Amazon for twenty-two dollars.)
A Blank Slate Ready to be Written Upon

The later “progressive-education” idea was based on 19th-century romanticism. Its metaphor was that of a seedling ready to unfold. “Fair seedtime had my soul” said the archetypal romantic, Wordsworth. Here’s a seedling:

A Seedling Ready to Grow According to Her Nature

A plant grows according to its innate nature. (Note the etymological connection of the two words *innate* and *nature.*) That seedling metaphor for the human mind had been rejected by Locke and Hume who discarded the old notion of innate ideas.

But innate ideas were resuscitated by the romantics—including by John
Dewey, our most influential modern school theorist, who was a Hegel-Darwin Romantic, as I discuss in Chapter 14. Our post-1940s romantic educators generously applied botanical images and metaphors. Education was *not* to be just receptive instruction from the outside—a mirror. It was chiefly to be a natural growth from within. It was a God-given lamp that is fueled by the natural, innate impulses of the individual child.

The romantics said that anything which interfered with the child’s authentic, natural growth was “artificial” and destructive of God’s implicit (seeded) plan for each individual child. T. E. Hulme once gave a very succinct and profound definition of Romanticism as “spilt [spilled] religion.”⁴ There still persists an implicit religious premise in child-centered education—which helps account for the fervor of its advocates.

After the 1940s in the United States, Romanticism increasingly replaced our earlier Enlightenment ideas about schooling. Earlier we had explicitly used both the metaphor and the physical reality of John Locke’s blank slate. (That’s also what a blackboard is.) Romanticism’s counter premise was that Nature and Instinct know better than Locke’s “meddling intellect” about how to school a child. That phrase, “meddling intellect” was coined by Wordsworth:

> Sweet is the lore which Nature brings;  
> Our meddling intellect  
> Mis-shapes the beauteous forms of things:—  
> We murder to dissect.
Enough of Science and of Art;
Close up those barren leaves; [of a book]
Come forth, and bring with you a heart
That watches and receives.⁵

In the 1940s we took the plunge. Our American version of romanticism wasn’t as earnest as Wordsworth’s, but millions of Americans in the 1940s sang a song whose refrain invoked nature. Here’s one of the stanzas:

Folks like us could never fuss
With schools and books and learnin’.
Still, we’ve gone from A to Z,
Doin’ what comes naturally
Doin’ what comes naturally.⁶

I know that song because I’m ancient enough to have sung it. It was one of the hits of the era. It topped the hit parade. It was recorded by Ethel Merman, Betty Hutton, Judy Garland, Bernadette Peters, Zuzi Quattro, Dinah Shore, and the DeMarco Sisters.

But despite its claim that “we’ve gone from A to Z doing what comes naturally,” there’s no natural-growth way to get from A to Z—either literally or metaphorically. Our Roman alphabet is no more natural than the Greek alphabet, or the Hebrew, Persian, or Chinese systems of writing. To go “from A to Z” you must emphatically do what comes culturally.

The word “nature” means inborn, innate, and that’s simply false for the particularities of any particular human culture. Locke was right about the blank slate, at least with regard to literacy and the learning of tribal lore. Once we acknowledge that scientific truth, perhaps we will be sensible enough to go back to his metaphor of the blank slate for most of our schooling. If we do so, our reading scores will go up. And so will our unity and patriotism, and the level of our politics.
Chapter 2

The South Bronx Miracle

Jeff Litt: A Hero of Education

This book is dedicated to a brave school principal, Jeffrey Litt. Now retired, Jeff is an idealist who performed a miracle in the South Bronx, the poorest section of New York City. Some twenty-three years ago, Jeff started an elementary charter school in the South Bronx with backing from the financier Carl Icahn. Jeff was persuaded by the arguments and proposals about elementary education from the Core Knowledge Foundation in Charlottesville, Virginia. His first school has evolved into seven Core Knowledge elementary schools in the South Bronx, and all of them have received awards and, over twenty-three years, they have sent every single one of their graduates to select high schools.

Here is the sociological data for the school year 2019-2020 about the pupils in those schools:7

| Demographics of Icahn Charter Schools in NYC |
|------------------|---|---|---|---|---|---|---|
| Icahn School     | #1 | #2 | #3 | #4 | #5 | #6 | #7 |
| Below Poverty Level | 85% | 58% | 72% | 66% | 77% | 85% | 78% |
| Black            | 49% | 33% | 62% | 61% | 58% | 51% | 45% |
| Latino           | 50% | 56% | 29% | 29% | 30% | 46% | 49% |
| Disabled         | 4%  | 4%  | 8%  | 12% | 7%  | 10% | 8%  |
| Homeless         | 7%  | 8%  | 5%  | 4%  | 2%  | 9%  | 6%  |
| ELL              | 7%  | 4%  | 2%  | 2%  | 2%  | 8%  | 7%  |
| Asian/Pacific    | 1%  | 4%  | 4%  | 4%  | 6%  | 1%  | 3%  |
| White            | 0%  | 4%  | 3%  | 1%  | 5%  | 1%  | 1%  |
| Native American  | 1%  | 1%  | 1%  | 1%  | 1%  | 0%  | 0%  |
Carl Icahn generously contributed buildings, but there are no financial extras. The operational per-pupil spending of the seven schools is the same as any other public charter school in the Bronx.

Currently, twenty-five thousand (25,000) children apply to the seven CK kindergartens each year. (There are no openings in other grades, since no child leaves!) The blind kindergarten lottery for six schools offers places for only about two hundred and fifty young children. That's because, by law, siblings must be accepted. Since no child leaves, only kindergarten places are available. I'm told that this lottery-governed acceptance rate of 1% makes these seven South Bronx Core Knowledge schools more exclusive than Harvard, which has an acceptance rate of 3.2%.

Why do up to 50,000 parents now each year make the 99% fruitless effort of applying to the South Bronx Core Knowledge schools? Because, after twenty-three years of existence, word has spread regarding what happens to the graduates of those seven South Bronx Core Knowledge schools. Every single child achieves admission to a select high school. Word has further spread of those kids subsequently getting into college and getting good jobs. Through two decades of neighborhood gossip, results have become known—not through the silent press—but through word of mouth.

It's a useful story that doesn't fit preconceptions. Core Knowledge isn't liked by most educational experts in New York though over time that has become less and less possible to make that objection, as the reader can see from the appendix to this book, which excerpts the current early grades of the Core Knowledge Sequence. It's said to be “rote learning.” It's said to be “lockstep education.” Why, then, do the pupils love it? For them, it's not constraining but liberating and empowering. They are proud of what they know and what they can do. And that shows when they take their reading tests.

The good results and school awards come consistently from all seven of the South Bronx Core Knowledge schools. The results aren't flukes achieved by the ingenuity of especially talented principals and teachers who are indeed devoted and able people who love the uniformly excellent results they observe. Teachers and parents alike have concluded that the chief cause of the success is the carefully sequenced content of the Core
Jeff’s courageous implementation of the Core Knowledge curriculum shows the kind of thing that can and should be done elsewhere. Those specific materials are freely downloadable from the Core Knowledge Foundation. But similar well-researched efforts would work as well. (If readers are curious to see what the Core Knowledge curriculum looks like, they will find early-grade excerpts from the curriculum sequence in an appendix to this book.) Jeff’s pathbreaking achievement is remarkable. At first, he had to wean his teachers away from the dominant child-centered theories taught to them in their education schools.

**False Theories**

In sum, our literacy decline started along with our gradual rearrangement of classroom furniture as early as the 1940s and ‘50s. Our schools started doing just the opposite of what Jeff’s schools in the South Bronx are currently doing. When those classroom libraries were introduced in the fifties, here’s how one grade-level set of books looked in those days:
And here's a typical guide on the side
All this child-centeredness was encouraged by a fallacious theory about reading which conveniently held that reading comprehension is a *general* skill with different skill levels able to cope with more complex levels of “readability” and increasing levels of “complexity.” Rudolf Flesch popularized this incorrect (and still dominant) idea in popular books on readability.

His scientific mistake is discussed fully in later pages of this book, but it’s useful to understand from the start that readability is an incorrect theory that is still being used to justify our scattering of desks and tables and our introduction of classroom libraries with “different strokes for different folks.” Those are the outward and visible signs of the scientific errors that have sponsored our decline in literacy and that have seriously harmed our democracy.

*And it’s been shown that a shared-knowledge curriculum also produces more earning power.* A sociology professor—Philip Cohen of the University of Maryland—has shown that *teenage reading scores predict adult incomes.* That adds a dollars-and-cents fairness-and-unfairness dimension to the political and social inequality and disarray that has been caused by low literacy and lack of communicability and comprehension. If our schools don’t do a better job of literacy instruction in early grades, and if they don’t *equalize* the reading scores of advantaged and disadvantaged pupils, we cannot become an equal society.

The correlations found by Professor Cohen between adult income and teenage reading scores on the AFQT reflect the practical utility of high literacy in both the civilian economy and the military. It’s emphatically true in the military, as I discovered when I went on active duty in the Navy in the Korean War. I was a young enlistee at the lowest possible rank. I was assigned to clean the “head”—the naval version of the latrine. I was also ordered to take the Armed Forces Qualification Test (or its then equivalent). Being an avid reader and a child of literate parents, I aced the reading test.

I then directly experienced the Cohen correlation between one’s AFQT scores and one’s occupation and pay level. I was quickly removed from toilet-cleaning duty and sent to “Operations”—where the Navy pilots turned in their flight plans. There I had to deal with and joke with the officer/pilots, and I had to keep the HO-510’s up to date—the loose-leaf information pages kept on each of the nation’s airfields. In civilian life, I would have earned more money for operations duty than for cleaning toilets.
Chapter 3

Shared Knowledge is Key to Our Unity and Literacy

The Modern Nation

In his late nineteenth-century lecture at the Sorbonne entitled “What Is a Nation?” Ernest Renan, a great scholar of ancient history, rejected the idea that the modern nation is based on race or descent. History has proved him right. Many nations—not just the United States—embrace multiple cultures and races. And Switzerland is an example of a stable democratic nation with four official literate languages.

How is national unity possible in Switzerland, a nation of four official languages? Answer: Shared Background Knowledge. That is the shared characteristic that converts each national version of a standardized grapholect into a shared national language to be taught in a nation’s schools. Notice that the four languages of Switzerland are Swiss-ized languages. Schweitzer Deutsch is different from the German of Germany, not just in its pronunciation but also in its unspoken assumptions common to all Swiss people. That’s because Swiss schools in various cantons teach many of the same topics and impart much the same background knowledge. So, there we see a nation with four grapholects but nonetheless with a lot of the same shared knowledge underlying each of those languages. It is this intercommunicability that preserves Switzerland as a functional democracy.

The nationalization of a language requires both elements: a national grapholect and a national shared knowledge. To be literate in a national language, the citizen-to-be must possess not only the grammar, spelling, and vocabulary of the national language but also the shared knowledge of the national language. That combination of language and shared background knowledge alone turns the grapholect into a national language. Both the
national grapholect and the national shared knowledge are essential to a nation’s literacy and effectiveness as a democracy.

**Our American Literacy Gap is a Shared-Knowledge Gap**

Our literate language—the American grapholect—is an essential national instrument. In the late 1700s, before it became Americanized, our language-to-be was based on Dr. Johnson’s dictionary, which was already multi-cultural with words from Angles, Saxons, Frisians, Scots, French, Romans, Greeks, Norse, and Dutch. Then it was first Americanized by Noah Webster and became composed of further cultural elements. This process still goes forward—but mainly by adding new words not by transformations of old words. The old words have remained largely as they were in the nineteenth century and before.

Hence possession of this composite national print language is not a racial trait. The slur that scornfully calls our American grapholect “Anglo” is simply an expression of tribal hostility that is called racial prejudice when the shoe is on the other foot. We are all ethnic Americans (by virtue of our educations), and all our children deserve to gain proficiency in our common grapholect. Such proficiency is a ticket to equal status and higher income—as Professor Cohen has shown.

**The National Grapholect**

Every nation’s grapholect is special to that nation because it has been determined by accidental historical accretions. Those accidental historical accretions then get codified and made permanent (loo vs. bathroom, boot vs. trunk, jumper vs. sweater). The national character of our American grapholect can be observed by noting its difference from other national grapholects of English: such as the Australian, the Nigerian, and the British. They are all standard written English, but for active communications, they depend on their national schooling to provide the needed background knowledge essential to proficiency in the national grapholect for each modern nation.

In use, the shared knowledge often stays unspoken and implicit. With an instrument as ambiguous as human language, the very definition of a language community includes shared knowledge of the unspoken and unwritten, as well as knowledge of the spoken and the written. The shared knowledge is the nation’s silently shared background knowledge. That’s what the word “background” implies. But, once brought into the open
and taught to all children, shared knowledge becomes a citizen maker and a money maker. That’s what Professor Philip Cohen observed when he correlated Armed Forces Qualification Test (AFQT) scores with income.

Another way of describing the higher versus the lower scores on the AFQT reading test is to say that the high scorers correctly disambiguated the test items and determined their unstated, implicit meanings—because the test taker applied the correct shared knowledge. It is not too much to say that shared knowledge is essential to a functioning democracy. It is a truism that literacy is essential to democracy. It should become a truism to recognize that specific shared knowledge is essential to literacy.

The Swiss example of unity through background knowledge offers a key fact about the modern nation. Its schooling enables diverse people to communicate well and work together—even (in Switzerland) when using diverse languages—by means of shared background knowledge. Shared knowledge is the essence of nationality. It enables effective and accurate communication in speech and writing between the citizens of a modern nation. Nationality is shared background knowledge. Shared knowledge is a powerful unifying force that should be imparted effectively by the elementary schools of every modern nation. Mastery of shared knowledge requires schools to teach future citizens not just the externals of grammar and spelling and phonics, but also topics that often remain unspoken and unwritten. Cognitive psychology has come to recognize the linguistic universality and power of shared knowledge.

**Language Efficiency**

Therefore, its conveyance to our children must not be made ideological; it is a fundamental fact of linguistic communication and communicability. The decline of American reading scores is largely caused by the decline and neglect of shared grapholectal background knowledge.

Why did human language universally develop that way? Was it because of its on-the-spot efficiency? Example: if you are in a battle with another tribe, it’s good to have a lot of shared background knowledge that can enable you to keep communications accurate and short. But, whatever the evolutionary reasons for the prevalence of implicit meaning in human languages, all of them do in fact depend upon unspoken background knowledge to secure accurate understanding. Hence the education of the tribe’s children requires an education into the tribal shared knowledge as a
key means of achieving accurate and fast and explicated and disambiguated communication.

In any modern nation, effective citizenship and full mastery of the language require citizens to learn not just its grammar, spelling, and vocabulary but also the shared knowledge that enables effective communication in the national version of the language. It is a system of associations and implicit meanings that often remain unwritten and unspoken but are nonetheless essential to effective communication. A shared-knowledge dimension governs all human speech, whether familial, tribal, or national—and all politics in a democracy.

**It’s Not a New Idea**

Here’s an experiment reported in *Scientific American* in the 1970s that illustrated the point. It described a researcher going to Harvard Square in Cambridge, Massachusetts, with a tape recorder hidden in his coat pocket. Putting a copy of the *Boston Globe* under his arm, he pretended to be a Boston native. Putting on a Boston accent, he asked passersby, “How do you get to Central Square?” The passersby, thinking they were addressing a fellow Bostonian, didn’t even break their stride when they gave their replies, which consisted of a few words like “First stop on the subway.”

The next day, the researcher went to the same spot, but this time he dressed differently and presented himself as a tourist unfamiliar with the city. He said in a Southern accent, “I’m from out of town. Can you tell me how to get to Central Square?” This time, the tapes showed that people’s answers were much longer and more rudimentary.

A typical answer went, “Yes, well, you go down on the subway. You can see the entrance over there, and when you get downstairs you buy a token, put it in the slot, and you go over to the side that says ‘Quincy’. You take the train headed for Quincy, but you get off very soon, just the first stop is Central Square, and be sure you get off there. You’ll know it because there’s a big sign on the wall. It says, ‘Central Square.’”

The long explanation to the out-of-towner is, in its conveyed substance, entirely synonymous with the short answer, “First stop on the subway.”
That’s five words versus eighty words. Now imagine a situation that isn’t learning how to get to Central Square but instead needs to obey a shouted command in the middle of a conflict.

Or suppose it’s just a peaceful domestic command. Shared background knowledge makes for high efficiency. For example, the following command takes about four seconds to say: “Polly, put the kettle on. We’ll all have tea.” But to carry out the command takes a lot longer—around a half hour—during which you will need the background knowledge about how to make and serve tea, which includes a lot more than a pot of tea. Efficient communication through silently shared background knowledge is a human universal. Here’s the way that insight was stated by the scientist who wrote the piece in *Scientific American* many years ago:

What we see developing so slowly in our studies of children’s communication is a constellation of knowledge and skills that reflects the child’s interaction with the world and with other people and cultures. The social use of language depends as much on that knowledge as it does on knowledge of a language itself.

Commonly shared background knowledge is essential to understanding the written and spoken words of a national language. Acquiring literacy in the modern world depends on gaining a nationality that consists of the silently assumed knowledge shared by a nation’s speakers and writers. A modern nationality is that shared knowledge, sustained ideally by the nation’s elementary schools.

**“Citizen-Centered” is Better for the Child’s Future and the Nation’s Future**

Child-centered schooling means self-centered schooling. The AFQT is a test that is citizen-centered, community-centered, and nation-centered. Two very different principles have guided our elementary schooling over recent decades: the child-centered, developmental principle and the nation-sustaining, citizen-centered principle. The child-centered approach has been scientifically ill-founded and has weakened our unity. The citizen-centered approach is in accord with science and also in accord with democracy and social justice.
Chapter 4

Democracy Requires a Stable Written Language

The late Chinua Achebe was once reproached by other African writers for writing books in English instead of in his native regional dialect in Nigeria, now a huge nation of 195 million people. Achebe’s response is available in an interesting booklet, English and the African Writer. His first novel, Things Fall Apart (a phrase from W. B. Yeats) remains an international bestseller. It has sold more than twenty million copies. Prudently, Achebe’s essay about writing in English did not mention the economic advantage to authors of doing so—in the rare case that the author is as talented as Achebe was. He emphasized in his essay that the Nigerian English grapholect is the national written language of Nigeria. It needs to be mastered for writing, and it needs to be mastered for reading and listening—and for national politics.

Here's a brief excerpt from Achebe’s essay on the difference between a national grapholectic culture and a subnational ethnic culture:

What all this suggests to me is that you cannot cram African literature into a small, neat definition. I do not see African literature as one unit but as a group of associated units—in fact the sum total of all the national and ethnic literatures of Africa.

A national literature is one that takes the whole nation for its province and has a realized or potential audience throughout its territory. In other words: a literature that is written in the national language. An ethnic literature is one which is available only to one ethnic group within the nation. If you take Nigeria as an example, the national literature, as I see it, is the literature written in English; and the ethnic literatures are in Hausa, Ibo, Yoruba, Efik, Edo, Ijaw, etc., etc.
Any attempt to define African literature in terms which overlook the complexities of the African scene, and the material of time is doomed to failure. After the elimination of white rule shall have been completed, the single most important fact in Africa in the second half of the twentieth century will appear to be the rise of individual nation states. I believe that African literature will follow the same pattern.\textsuperscript{11}

Of course, he is right. Nigeria and other African nations will follow the same nation-making pattern, as historians of modern nationality like Ernest Gellner and Jill Lepore have argued. In his summary, Achebe distinguishes the national language that is available to all from the subnational cultures and languages of the provinces that make up Nigeria. He predicted that Nigeria would eventually become a unified, literate modern nation with its own grapholectic version of English. Achebe went on, amusingly, to illustrate his point by offering a paragraph in British English as contrasted with the same paragraph in Achebe-ese.

He also inserted the phrase: “the material of time.” A residue from the past exists in all written languages and every national grapholect. Part of the material of time is this: \textit{the long life of a national grapholect in its standardized form is sustained by the nation’s schools across generations. Being school-sustained is a key factor in the grapholect’s remarkable durability, as the historian Ernest Gellner has observed.}\textsuperscript{12} Gellner had made precisely the distinction made by Achebe about the difference between a national culture and a sub-national folk culture, Gellner wrote: “\textit{A school-transmitted culture, not a folk-transmitted one, alone confers usability and dignity and self-respect on industrial man.}” And the historian Jill Lepore wisely adds this: “\textit{It’s possible to imagine a world without nations. But, in the meantime, that world does not exist, and this world is a world of nations, which is why it’s important to understand what nations are and to imagine what they can be.}\textsuperscript{13}

As time marches on, more and more children get sent to the “common schools” of modern nations like Nigeria and the United States, more and more people learn how to read and write the stable national language. As that school-educated population expands to embrace most of the nation, the stability of the grapholect grows. Since the 18th century, the normalized, school-sustained grapholect of English has proved durable and resistant to
change, though with slightly different flavors in different nations. Witness: Britain, America, Nigeria, and Australia. Language stability and the “material of time” are important to the unifying and enabling functions of the school-sustained grapholect.

That makes it a formidable instrument and an indispensable one. The nations of the European Union were pleased to adopt the utility of a common currency—the Euro. But to adopt a common grapholect in Europe— not a chance! The nation-state and its school-sustained communicative instrument is a key political fact of nationhood in the modern era. Americans are lucky that the de facto common second language widely used on the internet and in conferences is the American grapholect. As more people adopt American English as a second literate language it becomes ever more stabilized. As more and more Americans gain greater mastery of its implicit background knowledge, our democracy becomes both more stable and more fair.
Chapter 5

Biculturalism is a Key to Modern Democracy

But mastery of the grapholect does not mean disloyalty to one’s roots. Our minds and emotions easily deal with more than one social context or set of conventions. Any native of an English-speaking nation who pays a tourist visit to one of the other English-speaking nations quickly perceives moments of puzzlement. But we tourists rarely say to ourselves “This proves the existence of school-transmitted language grapholects that are different in different nations.” But that’s what we accurately could say.

Fortunately, in modern times, it is rarely necessary to master more than two literacies, and in modern times these can have a degree of stability. Things were much less stable before the printing press and the standardization of national print languages. The spoken and print language of Britain—our language predecessor—had been quite unstable. Two popular poets of the late seventeenth and early eighteenth centuries, John Dryden and Alexander Pope, feared that the language change that had been occurring in the past would continue in the future and cause their own work to become unintelligible—as Chaucer’s language had become in their day.

But that did not happen. Alexander Pope made a wrong prediction in his Essay on Criticism (1709). He did not foresee the immortality of the future national British grapholect: He wrote:

Now length of fame (our second life) is lost,
And bare threescore is all even that can boast;
Our sons their fathers’ failing language see,
And such as Chaucer is, shall Dryden be.14

But no, Mr. Pope. We can read you and Dryden perfectly well. It’s true that we can’t read medieval Chaucer very well. But by the eighteenth century
when you were writing, and when the United States was getting founded, the English grapholect was well on its way to becoming firmly standardized into the form and vocabulary it bears now – as we can see from your verses quoted above – so long as we can parse “threescore” from having read the Bible and Abraham Lincoln. A little later in the century, Samuel Johnson produced his monumental *Dictionary of the English Language*, and it is still readable.

In America, the dictionary-maker Noah Webster, built upon the work of Samuel Johnson. Webster became our American-language lawgiver. Our American print language is highly stable now. But print English has national grapholectic variants across the globe in the different nations that use it. That illustrates not instability but rather the *stability of the school-sustained variants* of modern national languages! By means of their elementary schools, nations decide the character and they fix the stability of their national grapholects. Each nation’s grapholect, regardless of its base, has a different word-frequency profile and a different system of shared background knowledge—and, therefore, a different school curriculum to support that national grapholect with its word-frequency profile.

Currently there is an ignorant, sentimental push against the unifying and stabilizing power of the long-stabilized national grapholect. What A. S. Schlesinger Jr. described as a “cult of ethnicity” in the United States is now all too prevalent in Nigeria as well as the United States. Schlesinger said, “A cult of ethnicity has arisen both among non-Anglo whites and among nonwhite minorities to denounce the goal of assimilation, to challenge the concept of one people, and to protect, promote, and perpetuate separate ethnic and racial communities.” That is why our reading scores have declined, and with them our competence and unity.

That’s in America. In Nigeria, it’s reported that the current minister of education has decreed that literacy in the schools shall be taught in the tribal languages and not in English. Parents and others who are Nigerian patriots should challenge that misguided policy that injures the progress of Nigeria and perpetuates economic disparities. To teach the national literate language is an obligation of Nigeria’s schools (and of schools in any modern nation) in the national grapholect that has been decided upon.

Hence schools also have the corollary obligation to teach the shared national, literate background knowledge that is essential to effective
Biculturalism is a Key to Modern Democracy

reading, writing, speaking, and listening in the national language. That’s key to mastering the national Nigerian version of English. Achebe grasped this national obligation and he declined to accept awards from the corrupt Nigerian government, thereby making public his opposition to the unjust and ineffective economic and confused educational policies of the Nigerian government.

Differences do arise between national grapholects but stability is the rule within a national grapholect, as more and more generations learn the school-transmitted language. A majority of successful persons within a nation do master the existing national grapholect, making it more entrenched with each passing decade. Culture warriors who believe that we must multi-culturize the American grapholect have some basic ethical obligations in addition to their cultural aims. Like physicians they should resolve: “First, do no harm.” That means: “Do not impose an untested unevaluated school curriculum upon elementary pupils until you make sure that it does not reduce their competence in deploying the national/international American grapholect.” As Philp Cohen showed, if you reduce their competence in American English, you reduce their adult income. You would be very foolish to assume that your currently disorganized and ineffective efforts can change the grapholect itself. Do you have a newly accepted, different version of Webster’s Dictionary of American English? If so, who did the accepting?

Such efforts could succeed in a small way—especially if experiments showed that it had beneficial psychological effects and that it did not lower our dwindled communicative ability still further. That good result could happen with a coordinated and gradual effort. But I would argue that the thousands of parents in the Bronx who try to place their children in schools that raise literacy scores in the standard American grapholect have not been persuaded by those who claim to speak for them. They do wish to have their home cultures honored by the school, but their primary goal is for their child to master the shared public culture that all our schools have a duty to provide. Symbolic new inclusions that gain acceptance are of course desirable so long as they are not so numerous as to compromise the child’s literacy.

So, on the first-do-no-harm principle, prudence is required. And empirical documentation is needed by the members of the implicit
Academy to Change the American Grapholect. They have a moral obligation not to compromise the competence, the literacy and the income of young school pupils. That’s harder to do every passing decade as, internationally, tens of millions of people both in the United States and abroad use the traditional American grapholect with its shared background knowledge as a medium of intellectual exchange on the internet and as a language for international communication.

As Chunua Achebe noted, biculturalism (both the culture of the home and culture of the nation) is a feature of modernity itself. It is a foundational reality of our current world, no matter the regime. Modern nationality in all its manifestations has certain common features across the globe. The successful schools of a modern nation enable its future citizens to possess not only a shared language with shared associations but also, by means of that language, a shared sense of social belonging and allegiance—a subject of the final chapter of this book.

Because of the frequent modern need for biculturalism (the language of the home plus the language of the school and of public affairs) it’s important to avoid the technical and moral mistake of essentializing one’s own home ethnicity. All ethnicities are learned, not born. Take the example of Hispanics who have currently immigrated to the United States from Mexico. If that situation were reversed and I, a Yankee, decided to emigrate to Mexico, I’d still have my American sub-national ethnicity. Yet to be successful, I’d need to master the Hispanic grapholect of my new country—it’s grammar and spelling, and pronunciation, plus its shared knowledge. That’s biculturalism, not multiculturalism. “Multiculturalism” is a vague idea that tends to be a sporadic, dilettantish tokenism. It reflects nobody’s culture. Biculturalism, by contrast, is a firm and necessary modern reality, as historians and linguists alike have noted.

The young people of the United States have now sunk to twenty-fifth in the world in elementary schooling. We can improve our competence, collegiality, and fairness by teaching everybody the shared knowledge of an American literate nationality. A modern nationality becomes an ethnicity over time. Acquiring the national ethnicity, in addition to any other ethnicity that citizens have, is essential to achieving competence, collegiality, and economic fairness in every modern nation of the world.
Chapter 6

Low Literacy Leads to Political Extremism

One reason that the incorrect essentialist notion of ethnicity has made such an impact on our schools recently and has been easily accommodated intellectually by our schools is that ethnicity is so easily conceived as part of the child’s essential nature. Hence, child-centered schooling readily embraces the child’s ethnicity as part of her essential nature.

Children have different natures. What parent can doubt it? But no child has an inherent culture. For our schools to believe so is to make a serious, nation-harming empirical mistake. From a scientific standpoint, our current preoccupation with ethnicity regresses from our founding understanding that ethnicities are made, not born. Our key early nation-makers, including Jefferson and Hamilton, were disciples of John Locke, who rejected the idea that we are born with an ethnicity. Locke rejected the idea of an inborn blueprint that requires us to let the child develop naturally.

On the contrary, Locke said, we are born with a blank slate. All men are not only created equal they are created with a blank slate. Current science agrees with Locke in the aspects connected to culture. In the sphere of national language and national lore Locke is right. The child-centered developmentalists who posit an inborn ethnic blueprint in the child, are simply scientifically wrong. With respect to ethnicities, we are born as Lockeans. Ethnicities are taught, and second ethnicities can easily be taught and learned.

Since the 1970s with the admirable rise of racial desegregation, the child-centered idea has gotten linked with the multi-ethnic idea. This “multicultural” issue must be just as openly considered as the racial. It’s on everybody’s mind. I believe it’s important to say bluntly that it is sheer racism to assume that an ethnicity is inherent. Racism is essentialism, and vice versa, essentialism is racism. It’s not confined to sentiments about skin
color. To essentialize an ethnicity is not only an empirical mistake. It's a deep ethical mistake. It's to think like the Nazis when they murdered over six million Jews. Ethnicity is not an inborn essence; it is learned upon our blank slates. And that means that anybody can be bi-ethnic without much ado. To be so takes only a good elementary education!

The primary duty of our elementary schools is to teach the language and the ideals of our national tribe—its national ethnicity sustained by its national grapholect. Of course, we should encourage bi-culturalism, and be sensitive to the home ethnicities of our young pupils! Unfortunately, many Americans have recently been taught to assume that ethnicity is innate.

To assume so is to be a benighted pre-modern, pre-Lockean. Modern nations depend on a school-transmitted language and school-transmitted culture quite separate from a “folk-transmitted” culture.\(^{16}\) The power of shared knowledge schooling—essential to grapholectic mastery—is a universal of our modern era—one that holds for \textit{all} modern nations. Vague “multiculturalism” as a national ideal—as distinct from widespread bi-culturalism has been a well-meant but ignorant mistake. When combined with the individualism of child-centered education, our schools have been driven to unsuccessful curricular incoherence, based on that scientific mistake.

Our helter-skelter, ad hoc tokenism is based on the mistaken child-centered notion that reading and writing are \textit{general} skills that can be developed by any elements that come naturally to the individual child. Not so. The elements are knowledge-specific and culture-specific. Schooling based on incorrect ideas about the generality of literacy and critical thinking will continue to fail us. The ideas are scientifically and morally incorrect. Their individualism has caused our reading scores and our unity both to decline.

Nonetheless, “child-centered” and “student-centered” terms have been irresistibly attractive. And here is their chief tenet: \textit{Each child is born with an innate developmental growth principle that should be encouraged to unfold in its own way like a plant unfolding from a seed.}

That erroneous assumption can badly weaken a nation. The “develop-ing” (unfolding) metaphor came to us from nineteenth century romantic poets and philosophers. “Fair seedtime had my soul,” said the poet Wordsworth. Writers like Wordsworth and Hegel helped foster
that developmental, child-centered idea. Thus Wordsworth in his “Ode: Intimations of Immortality”:

Our birth is but a sleep and a forgetting.
The soul that rises with us, our life's star,
Hath had elsewhere its setting,
And cometh from afar.

Wordsworth is easier to quote than Hegel, but the unfolding principle is also explained with great particularity in Hegel’s *Phenomenology of Spirit*, which was John Dewey’s favorite Hegel book. Dewey was our most influential philosopher of child-centered education. He once acknowledged that Hegel had left “a permanent deposit” in his mind.17

I’ve already explained why a child must learn the shared, unspoken knowledge of her speech community to understand the vast realm of the unstated that is taken for granted in human speech.18 The communal necessity combined with the mistake in holding that reading ability has general levels rather than exhibiting a much more complex character has explained why child-centered individualism has not worked. Its individualism has also depressed our sense of community and our loyalty to other Americans. Its individualism and associated narrow sub-group-ism, has assisted a decline in American unity and patriotism.

**The Current Scientific Consensus**

A more communal and effective form of schooling is now called for. The current scientific consensus about reading and language has led to a conclusion among researchers that the optimal mode of early education in a modern nation is to make use of a small core of common topics as a shared basis for learning the rest of the curriculum in the elementary grades.

There is a big technical advantage in using a core of common topics. It enables all the children in a class to master closely analogous knowledge (“near transfer”) and common topics enable the teacher to effect far transfer to new shared knowledge for all the students in the class. Recently there have been decisive studies of the firm superiority of shared-content schooling.18 Here’s a quick explanation as to why that technique is so decisive in achieving excellence and fairness.
To include everyone in the class, fairness requires that some common reference points be offered to the whole class in the early grades. That common-sense view has been strongly reinforced in recent studies. The technical need for common reference points does not entail groupthink. Nor does it imply that shared core topics must be treated in the same way by all teachers. Lockstep education is out of the question in the United States. But we in the United States do need to grasp what we are saying to one another, and we need a common basis for further learning in each grade of a school – especially in the early grades where life chances are so often decided.

**Literacy and Modern Nationality**

In the past half-century, we started to ignore shared content because two mistaken notions came to dominate our elementary schools. The first idea, which started in a big way in the 1940s, was a new emphasis on individualistic, child-centered education. Instead of imparting shared knowledge, its guiding principle was to encourage the child’s individual “development.” It emphasized child-centered individualism. That individualistic viewpoint militated against teaching everybody communally shared background knowledge. It created classroom book bins with different books for different children.
This child-centered approach is based upon the incorrect notion that literacy is a skill that can be taught by any suitable materials at the right reading level. Those books are fine for recreational reading. They are not fine for developing commonly shared background knowledge. Such book bins and scattered school tables are outward and visible signs of wrong theories and a of a not very literate nor patriotic generation of Americans.

**Multiculturalism vs. Biculturalism**

On multiculturalism, let’s agree from the start that every culture deserves equal respect. Let’s agree that our schools must sensitively convey such respect to children and parents alike. But equally important, our schools also have a paramount duty to demonstrate that respect in ways that do not lower our reading scores in the national grapholect. That is a balance of obligations has been achieved in the seven Core Knowledge schools in the South Bronx and in Core Knowledge and similar schools elsewhere in the United States.

The example of multilingual Switzerland is again useful. Switzerland illustrates the critical features that make multilingualism possible. Multilingualism is NOT multiculturalism. In a nation it’s biculturalism. Various Swiss citizens know a lot of different home cultures, but everyone learns a shared national literate culture. The language within any given Swiss canton is a single standardized language. A lot of the Swiss shared background knowledge is shared nationwide—thanks to the commonality of topics in the Swiss elementary schools.

No unified and workable nation exists without the communicability that is enabled by shared knowledge. It is essential to literacy as every reading test proves. Biculturalism is often needed, but one of the two cultures must be that of the grapholect. Modern American English is a cultural hybrid. But too much school time allocated to ad hoc, sporadic tokenism can become so consuming that it can hinder literate communication with the majority of a people who are no longer in school. The good earners and productive citizens in a modern nation can readily deploy its grapholect. The most democratic and fair aim is to include everyone by making everybody expert in the national shared knowledge and language. That is a central obligation of the schools in a modern democracy—to enable everyone to be included.

In the United States, a widespread and diverse bicultural reality can
happily exist without imposing exclusivist, self-conscious, unshared multiculturalism. It’s better to impose a common national literacy. Modern national unity is possible to the extent that we all learn the national grapholect and its shared knowledge in our schools. Every highly literate nation does this. If we focus on such a plain and universal fact of modernity, our reading scores will go up, our income inequalities will diminish, and our commitment to our society and nation will increase.

Nationalism is sometimes a very bad thing that murders people in unnecessary wars. But nationality is also a good invention of the modern world. It brings people together in productive ways – including people of diverse races and home cultures and political parties. A nation can be unified in a common linguistic instrument that promotes effective communication, social commitment, and patriotism. That linguistic principle applies to all modern nations.

**As Our Literacy Declined,**

**We Became Less Functional as a Nation**

American literacy and our ability to communicate with one another have declined in recent years because the education of young Americans in elementary school started ignoring shared background knowledge. Why? We used not to ignore shared school content, and our reading scores used to be much higher. It was largely because two mistaken notions came to dominate our elementary schools.

The first idea, which started in a big way in the 1940s, was a new emphasis in our public schools upon individualistic, child-centered education. Instead of imparting shared background knowledge, its principle was to encourage the child’s individual “development.” That individualistic viewpoint from the post-Enlightenment, Romantic period militated against teaching everybody communally shared background knowledge. It created those current book bins with different books for different children.

Since the 1940s, our public schools have stressed a romantic child-centered approach based upon the incorrect notion that literacy is a “skill” that any “suitable” materials can gain at the right “reading level.” “(See chapters 11 and 12 of this book.) Our “classroom libraries” with individual booklets on different topics exemplify that mistaken notion of general reading levels.
But that trend overlooked the key importance of nationally shared background knowledge. The readability idea took over our literacy instruction. By 1960, half of America’s public schools had classroom libraries on multiple subjects pitched at the “right level” for each grade with subject matters to be chosen by the young children themselves. That change, based on the technically incorrect notions of “readability” and “reading levels,” occurred between 1940 and 1960.

Then in the 1960s and 70s, there arose an emphasis on cultural inclusivity and multiculturalism—an admirable impulse to make everybody feel included. But since commonly shared background knowledge is itself a principle of inclusion, effective racial and cultural inclusion and fairness can only be achieved by making everybody highly literate in our common language. (That does indeed imply cultural “imperialism” and “cultural hegemony” within a nation as fashionable multiculturalism names the phenomenon.) But that’s the nature of the tribal language in all human tribes. Biculturalism in a nation says: my home culture is as good as yours, and both of us have the shared background knowledge that makes us proficient in the national grapholect.

**Each State in the United States is Obliged to Teach the American Grapholect Effectively**

Under the Constitution, our state legislatures and governors have the duty to decide what the content and emphasis of our children’s education shall be. It is a dereliction of legislative duty to “leave it to experts”—especially when those experts currently disagree. Common sense suggests they not choose experts who have permitted our reading scores to decline and our knowledge of basic civics to sink. Current failures require that our legislatures and governors fulfill the obligations of their office to ensure the effective education of upcoming citizens.

Of course, we don’t want state legislators telling us exactly what to teach. But there is one key, bipartisan exception to that hands-off tradition. Legislators need to mandate in a near-unanimous, bipartisan way a small set of shared topics in each elementary grade to enable the school to achieve fairness and excellence. The Kim study, outlined in Chapter 7, has illustrated the imperative for a core of shared topics, an obligation that derives from technical reasons which transcend ideology. Shared topics speed up the
child’s learning of all subject matter because shared topics introduce shared reference points known to the whole class. That method quickly enables new learnings to take place by all the children in the class. That assures faster and broader progress in learning every subject. Such shared reference points assure greater social justice because it liberates classroom learning from dependence upon the child’s home background. Moreover, commonly shared knowledge enables all the children to gain new knowledge by independent “near transfer. It enables the teacher to reach all the children in the class by the analogies and metaphors which enable teacher-guided “far transfer.”

That small enabling core of topics needs to be shared statewide. Hence the inherent educational need for the state legislature’s action in naming a handful of core topics. Parents with young children change residence a lot within a state. A statewide topic commonality on core topics puts all the children in a class on the same footing for the new topic (of local choice) that is to be mastered. This shared-topic principle applies to the nation as a whole to impart to everyone the shared background knowledge required for high literacy. That will need to come by agreement among the states. Meanwhile, officials will understand that a state-mandated core of a few shared topics must be fully bipartisan.

That could happen if the wider public insists on it, understanding that when a state supplies such useful enabling guidance in early grades, that state will shoot ahead in reading results. Far from entailing thought control, gains in shared background knowledge help vaccinate our children against thought control. Voters and parents need to grasp that basic point about shared knowledge. And legislators need then to be aware that the voters are informed on this point. Seeing this, the public in other states will, we hope, demand a set of mandated grade-by-grade topical reference points in the schools of their state. How those six or seven shared topics are treated must be decided by individual schools and teachers. No mind control there. It’s mind liberation, and mind enabling knowledge.

The phrase “No Child Left Behind” was good rhetoric for our national law of that name. But it did not achieve its aim. It evaded the need for specific shared knowledge. Similarly, the “Common Core State Standards” initiative used a first-rate title, but it did not mention any specific topics.
Instead, it specified non-existent general reading “skills” such as the skill of managing “text complexity.” But such a general skill does not exist, as a recent book showed, and this book will also show. The theory of a general reading skill was adopted by child-centered educators to enable teachers to individualize the student’s choice of readings. That’s not a good way to instill shared knowledge! To invoke a non-existent entity is not a good way to do anything constructive.
Chapter 7

Hyper-Individualism Impairs Democracy

Here's what our schooling looked like when our students scored higher in literacy:

The Pre-Readability Classroom:

This photo shows an American upper elementary class in the late 1930s or early 40s. Whatever the teacher is saying is a matter of rapt attention by the children.
That is what the new, more individualistic, child-centered education came to call (with disdain) “lock-step education.” From a different perspective—a national perspective that includes and reflects the multiple cultures—such lock-step education, that includes and reflects the multiple cultures, is precisely what elementary language arts classes need to be. That’s what a normalized national language is: lock-step pronunciation, lock-step grammar and spelling, and lock-step word connotations. Once a nation is on the same linguistic wavelength, all sorts of individual, independent-minded responses are more than welcome and are well understood. In good schooling, they form the shared basis for lively, informative class discussions.

One can be sympathetic to individualism in thought which resists “groupthink.” But to convey that individualism effectively within the tribe, one must exploit shared grammar, spelling, and lexicon—just as one needs shared conventions of hours, minutes, and seconds. The romantic pose of resisting or thwarting the conventions of one’s tribe, to be effective, requires an actual prior mastery of its conventions.

There’s a sociological side to the classroom picture that appears on page 38. All those different language arts students in urban, suburban, and rural settings are gaining mastery of the modern American language, its stories, and shared associations from “readers” that steal from each other. Those readers of the early twentieth century were of high quality and effectiveness—worthy successors to the nineteenth-century “readers” of Noah Webster and William Holmes McGuffey. They enabled pupils from all backgrounds to gain a mastery of standard American English and its shared background knowledge.

Our sense of superiority towards the past must not permit us to reject things that were demonstrably superior then—namely our reading scores. That’s the reason that this book several times reproduces the ski-slope decline of our SAT scores—a decline that was NOT caused by integration but by the incorrectness of child-centered theories. The SAT decline not only challenges child-centered theory; it also challenges our current complacent view that the present is always morally and as well as technically superior to the past. I’ve reserved a fuller discussion of that subject for the last chapter.
But starting in a big way in the 1940s, the national orientation to language arts gave way to the “student-centered” orientation. Although all students dutifully learned phonics—as they had to—some programs ceased teaching even phonics (!) in a systematic “artificial” way. Phonics, like everything else, was to be gained “naturally.” The quirks of standard American print language were also to be picked up naturally, by the developing individual child.

“Language Arts” became student centered, not nation centered. The means for accomplishing this transformation was to neglect or discard those big readers that everybody read and discussed. In their place were to be added individual booklets on subjects of special interest to each individual child. Still, today, that idea has been imprinted on the minds of our teachers during their training. They are offered the theory that children will pick up vocabulary faster and read more if the reading subjects are of special intense interest to each child. That was the origin of current classroom libraries.

The individual selections could not be discussed with the whole class under this scheme, so there had to be some method of bringing the teacher into the picture, and some method of ensuring that the child could understand the language of the selected booklet.

Thus originated two characteristics of the current American elementary classroom. Classroom libraries were instituted along with classroom “centers.” The centers were tables where a teacher could confer about a booklet or two with one or two students at a time. This became a tiring job for the teacher. It also raised the possibility of student neglect when the child was not at a center but nonetheless had encountered a difficult passage in a booklet.

The solution to that problem was to ensure the student did not encounter a difficult passage or sit in frustrated isolation. Instead, the student was given a booklet suited to her “level” of reading ability, pairing the student with the right text level from the start. That was the origin of the “dumbing down” of our school texts, documented by Professor Hayes and colleagues.24

**Enter “Readability”**

Educational neediness induced by student-centered education encouraged the concept that reading is a general skill with definable levels, and that a student could read anything at or slightly above her level.
Historically, then, individualization came first. Then came the application of the concept of readability. It was now to be introduced on a big scale to solve the problem of students being left alone with a book that they could not quite read. That had not been a problem with the old readers, because each selection had been prepared for in the text itself and in the classroom discussion.

A key figure, (though by no means the first figure) to introduce the readability idea to pair the student with the right text was the brilliant popularizer and linguist Rudolf Flesch, the author of numerous popular books on language. (But his original readability formula in the 1940s had been designed for writers, not readers. He created a “Reading Ease” formula to help those who aimed to write popular books. His advice: keep your sentences short. Keep your words short—not too many syllables. Keep your paragraphs short. That's the way to write best-sellers—as Flesch himself had notably done.

Here's The Flesch “Reading Ease” formula of the 1940s: Readability equals 206.835 – (1.015 x average sentence length) – (84.6 x average number of syllables per word). Those odd-looking quantities (e.g. 206.835) were devised ex-post facto from experience, to enable the formula to yield numbers between one and a hundred. Word length, sentence length, and paragraph length—the shorter they were, the higher the score and the easier the text.

Another key variable used in rival readability formulas is a number for word frequency, as determined from big collections of existing texts. But that raised problems because once the text got beyond words like “and” and “the” and the like, the frequency of words in various “text corpora” do not necessarily conform to their actual frequency in the experience of the young child.

Then, too, another fundamental frequency problem arose: the frequency of words having multiple meanings is inherently a misleading number. One of the word’s meanings can be far more familiar than another, thus distorting the de facto “reading ease” of the word. For example, “class” in its social-status meaning, is less likely to be as familiar to a fourth grader as “class” in its school meaning.

Nonetheless, to use such formulas as rough and ready guides to reading
“level” seemed a sensible and practical idea, even if inaccurate for an individual child. Yet apart from their inaccuracy and unreliability, readability formulas raised still further problems: they could be used irresponsibly as a substitute for intelligent and effective curriculum making—on the theory that reading comprehension is simply a general skill with definable levels. That is an incorrect theory that no current specialist in psycholinguistics will support.

**Readability Replaces Nationality**

The reading-level idea has currently been adopted by the Common Core State Standards (CCSS) group in the United States. The CCSS also adds the concept of text “complexity,” which has no more firm or psychologically valid meaning than “readability” does. That has relieved CCSS of the political difficulty of recommending a definite sequence of topics, whereby all students can be taught systematically the *nationally shared* topic knowledge that alone enables fairness and universal literacy in a nation.

The “Common Core” of CCSS is devoid of topics. It recommends instead readability levels as determined by various readability formulas. In the following chart CCSS have approved six reading-level formulas (ATOS, DRP, Flesch, Lexile, RM, and SR) and they have assigned each readability level to two or three grades.

<table>
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<tr>
<th>Grade band</th>
<th>ATOS</th>
<th>Degrees of Reading Power</th>
<th>Flesch-Kincaid</th>
<th>The Lexile Framework</th>
<th>Reading Maturity</th>
<th>Source Rater</th>
</tr>
</thead>
<tbody>
<tr>
<td>2nd–3rd</td>
<td>2.75–5.14</td>
<td>42–54</td>
<td>1.98–5.34</td>
<td>420–820</td>
<td>3.53–6.13</td>
<td>0.05–2.48</td>
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<tr>
<td>4th–5th</td>
<td>4.97–7.03</td>
<td>52–60</td>
<td>4.51–7.73</td>
<td>740–1010</td>
<td>5.42–7.92</td>
<td>0.84–5.75</td>
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</tbody>
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The chart enables teachers and publishers to assign individual booklets to the proper bins of the classroom libraries. But notice a key oddity of the chart. It’s not a grade-by-grade guide to readability levels. It’s a grade-band-by-grade-band chart. That’s an oddity because schooling takes place grade by grade. No doubt favorable explanations of the anomaly like “greater flexibility” could be adduced, but here’s my hunch about the real reason: There is a sufficient lack of consistent alignment in the scoring results of the various readability formulas that a grade-by-grade approach would
expose different levels and grade assignments from the different formulas.

That would look bad. And that’s indeed what a bit of sleuthing has confirmed: those scientific-looking readability formulas disagree with each other! Scientists tend to limit themselves to correct, agreed-on formulas like NaCl or E=MC². Readability is defective in principle and from the start since it omits a key factor in real-world readability—the topic knowledge and word knowledge of the reader.

The disagreement among the various formulas is tolerated because the alternative for the Common Core State Standards would be to provide Common Core State Topic Standards. And that is currently a political impossibility, given educators’ attachment to the child-chosen topic idea.

This is all unwittingly second-rate and devious, compelled by the commitment to student-centered learning. Language is inherently group centered. In no subject is it a good idea to make a young unformed child the selector of her own curriculum. Doing so in language arts has had the result of impairing our national competence, our national unity, and our social justice.
Chapter 8

Shared-Knowledge Enables New Learning

If the current theory of general reading levels and readability in people and in texts is incorrect and has helped sponsor our national literacy decline, then what is a technically more accurate theory that is likely to sponsor the revolution in curriculum that we need in the United States? One possible candidate to help lead such a revolution towards a more accurate theory is Professor James Kim at Harvard.

In a recent study covering almost three thousand young experimental and control students, Kim and his colleagues determined that shared background knowledge raised the reading comprehension abilities of first and second-grade pupils. It enhanced their ability to make accurate new inferences and learn new words and concepts by carefully sequencing the topics studied by the whole class.

The ability to make such progress in reading and learning is fundamental to education at all levels. In the case of language and reading, it is essential to advancement in gaining new shared background knowledge. Here is the summary statement from the Kim study.

Educational Impact and Implications Statement

This study highlights the benefit of sustaining learning of related topics and aligning science content across grades so that children can read with greater comprehension. Early elementary grade students’ acquisition of domain and topic knowledge is critical to reading and understanding complex content-rich informational texts. Sustained and thematic content literacy instruction can help elementary-grade students transfer their knowledge to reading texts about related topics in science and social studies. Therefore, sustained
content literacy intervention efforts that gradually build thematic connections across grades and across school and home contexts may help young children connect new learning to a general schema and transfer their knowledge to related topics. Compared with students in control group classrooms, students who participated in a sustained content literacy intervention from first to second grade made larger improvements on both general reading comprehension and science content reading comprehension outcomes.28 (My bolding.)

The whole experimental group had sustained teaching of a topic, whereas the control group experienced our normal, topic helter-skelter “reading-is-a-general-skill” approach. The results show that sustained thematic content instruction can help all elementary-grade students transfer their past knowledge to help comprehend other texts about related topics in science and social studies. This could be rephrased to say that the experimental group possessed relevant shared knowledge that helped them learn the new topic, and the control group did not. Shared knowledge is an instrument of “transfer,” which is the gold prize for new learning.

The Kim study went on to describe the shared-transfer-effect as follows: “transfer their knowledge to reading texts about related topics in science and social studies.” The researchers are careful to specify that the transfer effects from one topic to another, similar topics did not transfer to unrelated topics. They could achieve “near transfer” on their own but not what the technical literature calls “far transfer.” Both notions: near transfer and far-transfer are keys to successful education and the building of shared knowledge. Far-transfer, needs the help of teachers. But teachers are greatly helped in communicating with the class when the whole class shares a lot of the same knowledge.

Here’s why: There is an additional value in shared background knowledge within the classroom. Professor Kim and I have corresponded on that subject, in discussing a statement from an older-generation cognitive scientist whom we both admire – George A. Miller, famous for popularizing psychological insights, and author of a famous, indispensable article on short-term memory.29

What George Miller observed was a quite specific function of shared background knowledge that the teacher can use to help the student build
new knowledge—even when the student herself does not make the leap from old knowledge to new knowledge, because the leap is too far. Hence literature on the subject distinguishes between “near transfer,” which the student can do for herself, and which pupils in the Kim study did do for themselves, and “far transfer” which usually requires the help of a teacher.

The existence of shared background knowledge among all the students in the classroom is a key asset to the teacher, who can then take advantage of analogy and metaphor to reach all students. George A. Miller’s discussion of that key subject is worth quoting in full since it explains the indirect educational power of shared background knowledge as well as its direct power. Analogy and metaphor are the teaching tools for far transfer. All the students in the class need to know what a rose is if you say, “My love is like a red, red rose.” This pedagogical consideration alone argues for thematic commonality in the subject matter of early schooling! Here’s George A. Miller’s comment about the pedagogical use of shared metaphor to accomplish far transfer:

I shall try to defend a version of the traditional view that a metaphor is an abbreviated simile, and that the thought provoked is the kind required to appreciate similarities and analogies. In the nineteenth century, that kind of thought was called “apperception.”

“Apperception” is one mentalistic term that has not been rehabilitated by cognitive psychologists in recent years; perhaps it is time we got around to it. For Herbart (1898) “apperception” was a general term for those mental processes whereby an attended experience is brought into relation with an already acquired and familiar conceptual system. Today our psychological journals are full of terms like “encoding,” “mapping,” “categorizing,” “inference,” “assimilation and accommodation,” “attribution,” and so on; perhaps “apperception” would be a useful superordinate for all of them.

If I understand Herbart correctly, his general claim was that new things are learned by being related to things already known; he built his educational psychology on the belief that if teachers know what their pupils know, they can relate ideas they want to teach to ideas the pupil has already mastered. Although Herbart’s
term has passed from fashion, the educational philosophy of maximizing transfer of training seems as sensible now as it did a century ago.30 (My bolding)

This is the force of shared background knowledge brought down to the atomic level – and is the more powerful for that. The world of education, like the physical world, is built of such atoms of progress.
Cathy Kinter and Dr. Michele Hudak are knowledgeable practitioners of both child-centered education and knowledge-centered education. The child-centered kind is based on the romantic theory that the child is born with a seedlike brain ready to unfold (develop) into a healthy mature plant if given the right care. In contrast, the post-Locke tradition of American education is that we are all born with a blank slate ready to be written on by nurture and experience. Both are oversimplified metaphors. But the Lockean tradition of the blank slate is closer to the truth about human schooling from age five to sixteen, especially if you add to the blank slate the metaphor of the sponge.

On the other side, the romantic stress on the child’s individuality runs smack into the tribal instinct and the sociality of the child. But even while we are debating such matters, the kid in Singapore has been doing seed and blank slate and sponge all at once and is proving that happy, healthy children can nonetheless be both happy and proficient in reading, math, and science. So can American kids—who will have the additional responsibility of growing up in a democracy to help run a big complex country in a beneficial and fair way.

Here is an interview with two teachers who have experienced both the individualistic student-centered approach and the social, shared-knowledge approach. Dr. Hudak has taught in Ohio and in Arizona, and Ms. Kinter in Florida and North Carolina. Their prior careers covered a lot of territory. Both switched to teaching in knowledge-centered Core Knowledge classrooms in the latter parts of their teaching careers. They offer reliable, first-hand accounts of the classroom realities they encountered in the United States.

This verbatim interview lets us observe firsthand from experienced
teachers how poor children from disadvantaged circumstances are being cheated by theories about children unfolding naturally when allowed to follow their own paths. (Beware of the phrase “developmentally appropriate!” A human child is neither like a plant nor a puppy. For school learning, John Locke with his blank slate was more nearly right.31)

At the time of this interview, Cathy and Michele were teachers in Core Knowledge schools. I have changed their references to Core Knowledge schools to “knowledge-based” schools because this book and the Core Knowledge Foundation continue to stress that we are trying to promote ideas, not a single unique curriculum or unique materials.

The reigning theory of child-centered learning is both technically incorrect and socially unfair. In its effects, it is implicitly an enemy of equality, nationality, unity, and national effectiveness. It is a deep enemy of social justice. Its individualism has been technically sustained by the discredited notion of “readability,” as well as by the discredited idea that language ability is a general skill that can be gained by diverse helter-skelter books at just the right “levels.” On those incorrect notions, the school’s choice of topics can be left up to the students! I have bolded some of the more astonishing revelations of Cathy and Michele on the effects of that deeply mistaken idea.

As I now re-read my conversation with them, I conclude that it’s probably the most important chapter in this book. Most people (I find) are not as impressed with the technical aspects of the relevant science regarding learning and reading. But in this interview with Cathy and Michele you find two experienced teachers who have seen the issues firsthand with typical public schools in four states as well as in Core Knowledge schools and have reached conclusions that are similar to those of Professors Miller, Kim, and Willingham.

Moreover, Cathy and Michele speak both as teachers and as parents who have taught in both kinds of school, the child-centered kind, and the knowledge-centered kind. They speak as parents as well. Their own children have attended both kinds of schools.

When their experiences are paired with the recent dramatic multi-year research in the longitudinal studies by Professors Kim and Grissmer in particular—the firsthand observations of these teachers can be judged
There exists no alternative mode of early education that carries so much scientific and evidentiary weight as does the shared-knowledge approach in elementary education.

The first-hand observations from these teachers who are also parents, coupled with highly controlled longitudinal studies and in combination with international data, make clear that our recent jargon-supported notions of child-centered education have been a mistake that has weakened the United States morally and intellectually.

**DIALOG WITH MICHELE AND CATHY**

**Where’s the Curriculum?**

EDH: Is that currently typical of districts nationwide that teachers are given only this very general guidance rather than specific topics to teach?

MICHELE: Yes, yes. I told my own children I was going to teach in a new school where we knew in advance exactly the things the children had already learned, and we also knew what we needed to teach this year, so I said to my kids: “Listen, Mom’s going to go to this knowledge-based school.” And my daughter said: “Well, that’s a good thing, Mom.” “Mom, I think I’m going to come to your school.” And I said, “Why? You don’t have to,” and she said, “Mom, every year, in science since I was in kindergarten, I learned about plants. I’ve had the same packets on plants since I was in first grade.” And she said, “I’m just tired of plants. So, I think I want to go to your school to learn something else.”

**Empty Standards**

CATHY: The way that I met those standards was left up to me. I may have a particular textbook that I would begin and then go through the whole year, or I may not.

EDH: That raises another question. Do you mean that normally in what you’re calling the child-centered classrooms, the teacher will choose his or her own materials and textbooks to meet these very general standards?

CATHY: Yes. I think back to when I first went to North Carolina, and I taught science in fifth grade. I had a set of North Carolina “standards,” but I did not have any specific curriculum. It had no content. Think like a scientist and so on. Here are your standards, how you meet them is completely and totally up to you.
EDH: So, you’re looking at that issue from both angles, as a teacher and a mother?

CATHY: Yes. But the way that I met those standards was left up to me. I rummaged around to select my own materials.

EDH: So, the standards were never content standards?

CATHY: No.

EDH: They were what?

CATHY: Reading standards, math standards, writing standards.

EDH: They were skill standards, were they?

CATHY: Yes, yes. Very skills-based.

EDH: I see, okay. Now I’m getting the picture.

Note: I was “getting the picture” because cognitive psychology has informed us that such a “skills” approach is misconceived. The idea of general skills has been invoked to justify the child-centered approach, but recent psychology has debunked the idea of general skills. Another principle of the child-centered classroom is that children learn best when they help construct their own knowledge.

“Constructivism” is the name used in contrast to old-fashioned “instructivism.” It’s a half-truth that assumes that learning is authentic and durable when it emerges organically like a leaf from a tree out of the child’s own makeup. The romantic origins of such notions about authenticity as a natural growth is authenticated by Keats: “If Poetry comes not as naturally as the leaves to a tree it had better not come at all.” But constructivism is not a sufficient basis to change the configuration of the classroom from desks facing the teacher (instructivism) to large tables where the children face one another, nor to urge the teacher to be “a guide on the side not a sage on the stage.” That notion of the child unfolding—“developing”—out of her own nature is a key idea of European Romanticism. But “development” is not an accurate metaphor for induction into a tribal culture, which is the basic character of early education in humans.

MICHELE: Another child-centered idea when I was teaching first grade was that idea of centers—work centers for students, right? [Students move around from one round table to another.] You put these centers in place so that children could explore. There were literacy and math centers,
so I had this 180-minute block. That's a lot of minutes for a young child to be exploring. I don't even think I wrote lesson plans the first three years that I was a child-centered teacher because I spent all this time creating these independent work centers with the kids. And so, they moved from one center to another, and I had a bell and after fifteen minutes I would ding it and they would move to the next one.

After five minutes they were done, and there was usually mass chaos ensuing. So, then I would have to create more centers because I knew that the kids could maintain attention for only five to seven minutes. So, there I was on the weekends at school, creating twenty-five centers. I had this graph of a movement system to get the kids to move through, and then at the end of the day, I would be exhausted. I tried to teach my standards through their interests. So, my guided reading centers might be like this: In this center, we were building words about spiders. In that center, we were reading a reading passage and answering questions about butterflies. In another center, we were watching a video. In this center, which was my guided reading center, I might have leveled texts [a leveled readability concept that science rejects] about spiders.

**Cathy On “Centers” and Children Teaching Each Other**

EDH: Cathy, could you say a little bit about centers? What was the idea of these centers and how did they work?

CATHY: The idea behind the centers was that you were able to differentiate, to meet students where they were, and to take them as far as they could.

EDH: What does a center look like?

CATHY: It could look different in different classrooms. A center, basically, is a small group of students working on an activity together. Oftentimes they were student-generated, in that there would not be a teacher working with them. To meet the needs of students, you couldn’t give them whole group instruction.

[Author’s insertion: There could not be a whole-class discussion, because the background knowledge of each child was so unpredictably different. That was because their prior classes had been on different individualized topics. Hence, there was no possibility of a successful speech community in the class. This point is enormously important from the social justice standpoint.]
So, you broke it down into small, manageable groups, with, hopefully, high-interest activities so students would maintain engagement throughout them, even though you were not right there watching them.

EDH: In a way, they were teaching themselves at these centers.

CATHY: Correct, yes.

EDH: Because the teacher couldn’t deal with the whole class, because there was such varied backgrounds among the students?

CATHY: Correct. The teacher was usually at the reading center, where students were reading leveled books. So, you were working on reading skills and comprehension while the other students were working on different tasks related to a standard, but again, hopefully, high interest enough that it was engaging to them, and it would maintain their attention for fifteen minutes. And then they would switch.

EDH: How did you prepare? You’re preparing for the class to come in, and so how do you prepare who goes where and, physically, what do the centers look like?

CATHY: It took a lot of preparation time. I would make games or find videos. At one point in my classroom, I was lucky that we had [a place] where kids could watch a video and then I could create questions right after the video and they could record their responses to the questions. There would be a file folder of games.

EDH: So how many centers would there typically be?

CATHY: Most of the time it would depend on how many students you had in your classroom because I always wanted somebody to have a partner. The idea of the centers is to generate some student involvement with each other. So, if I was teaching twenty-five students, you never wanted more than five. It could be anywhere, honestly, from four to six centers that I had going in my classroom at the same time.

EDH: So, a lot of this, the interaction between the students, would be students teaching themselves. Have I got that right? Since it’s not teacher directed.

CATHY: No, it’s not teacher directed. There are times when I would have a listening station where they would put headphones on and follow along with a book. Or there would be books about [specific] topics. We just didn’t
Shared Knowledge

know what kind of conversations were happening over there in the centers. I was hoping for the most part that they were talking about the text that they were supposed to be reading or they were pulling some meaning from it. As long as they did not attract undue attention by being completely off task, that allowed me to work with my students at my current small group.

EDH: I see.

CATHY: Kind of terrible, huh?

**Incoherence and Unshared Knowledge**

CATHY: There was a lot of variation among the classes. We had five third-grade classrooms. You’re now looking at 125 kids coming from every classroom with hopefully the same “standards-based” education, but not any kind of specific content. I could have taught those standards through an exploration of astronomy or of the rain forest, and my fellow teacher might have taught the same standards through a completely different subject matter—a novel or an old textbook or something she found from a secondhand exchange.

EDH: So different classrooms at the same grade level in the same school are teaching different content?

CATHY: Correct. There was no shared content at all. The next day, maybe they were interested in Blackbeard. So we were studying Blackbeard. It was connected through the day but it wasn’t connected day-to-day.

**Critical Thinking About Nothing in Particular**

EDH: You’re a guide on the side.

MICHELE: Yes. You know, the idea was if you want kids to think critically you need to let them solve their own problems, and I guess my argument to that is, give kids a rich curriculum and let them ask questions about it, and there’s your so-called critical thinking.

EDH: On that point: did you actually spend time on critical thinking as a process?

MICHELE: Yes, I would have critical thinking packets that I gave my kids, but I didn’t see that it made any difference.

EDH: Let us go into that just a little bit more, if you don’t mind, because I’m interested in how much time was spent on your critical
thinking packets, and what is a critical thinking packet. *[I wanted to discuss that more because the idea of general critical thinking skills is repudiated by cognitive psychology. It’s one of those concepts (like readability, that was adopted-invented to enable student-centered, individualized subject matter.]*

**Michele:** Sometimes I had to make it up. A lot of times I would go to Barnes and Noble, which had a teacher’s section, so this was before the internet was widely used. I would find a little reproducible book that would say “Critical Thinking.” [Critical thinking was yet another supposedly general skill that supposedly did not depend on any defined knowledge domain. It attempted to make individualized topics seem a responsible method. It’s not accepted by cognitive psychologists.] There would be things like analogies and logic puzzles, not content but things of a puzzle-type nature. I would buy it, copy it, put it in a packet, and then I would say to the kids (who were way beyond what I was teaching that day in say, mathematics) to use their stapled packets. They would engage in something completely different from the math I was teaching that day. What I found out, later on, is that in a knowledge-based, instructional school children don’t have a lot of extra time to waste on so-called critical-thinking tasks. Every instructional minute matters because we have so much content to deliver. In a typical child-centered school, teachers will put these critical-thinking packets together for kids because they have more time on their hands.

At my current knowledge-based school, we just don’t have any time on our hands for critical-thinking packets, because every subject carries equal weight. In a knowledge-based school, you are reading, you are writing, you are talking, in every subject area.

**Child-Centered Civics**

**Edh:** It was the expanding horizons kind of idea?

**Cathy:** Yes.

**Edh:** So, from the small group to the neighborhood, then to the city and then to the country, that sort of thing?

**Cathy:** Yes, correct.

**Edh:** Expanding horizons didn’t give them a lot of history, did it?

**Cathy:** No, no, not at all.
**Michele on Expanding Horizons**

**MICHELE:** The social studies standards are such that they learn only the same old stuff: about themselves, their home, and their community.

**EDH:** Oh, my goodness.

**MICHELE:** Mind you those so-called child-centered materials were in the form of worksheets or little projects. Let’s make a teepee or a totem pole to study Native Americans, and they could take their little packets of papers home. There was little to no content. And I can tell you as an educator I didn’t even know where to go to look for content. But really it didn’t matter, because you teach the big three and that’s really where you spend the bulk of your time.

**EDH:** By big three you mean reading, writing, and arithmetic?

**MICHELE:** Yes. Going back to my days in a child-centered school, we did something called project-based learning in my first years. We had to create an “authentic” problem for students to solve in their community. So, my colleagues and I in first grade got together and we came up with a problem. We pretended the local park was going to be closed, and we had to generate a letter-writing campaign to try to keep the park open and provide reasons why the park should remain open.

And so those poor children really believed that they were closing one of their local parks, because we had to make it authentic. And there had to have been some notion of ecology tied to it, I don’t know — maybe people were littering or something. But what can first graders do? They’re learning how to write, and we’re going to have them write a letter. It was just so artificial. They could see through it. They might not know how to write, but they were smart.

**Michele on the Contrast Between Child-Centered and Knowledge-Centered Schools**

**MICHELE:** My son Ethan attended a knowledge-centered school, and it was the end of third grade. My husband and I were out to dinner with him one night and my husband said, “So Ethan. What was your favorite subject in school this year?” And he said: ”Rome”. And he began with the story of Romulus and Remus, and I’m not exaggerating when I tell you that for one hour we sat and listened to him recite the rise and fall of the Roman Empire in detail. Ethan was in the first class of eighth graders that
experienced a knowledge-based school all the way through elementary school. They were our test group. They are all freshmen in college now, and their awards and scholarships and accolades, and university choices are just unbelievable.

**EDH:** We know what the end product is. You’ve just described it—college for all. But how would you describe the difference, in what is actually going on, in child-centered and knowledge-centered classrooms?

**MICHELE:** Okay. I’ll give you a good example. In my daughter’s third-grade child-centered classroom, they were given a basic reader. Some of the stories are excerpts of classic literature, and other stories are just stories that a publisher makes up and puts in an anthology.

You come to a knowledge-based classroom, and the students begin their day with the Vikings. During reading, we are exploring the Viking myths and having a rich discussion about that. We go to the domain-based read-alouds, and we’re now reading aloud about the Vikings. Everybody feels they’re getting somewhere from one day to the next. And they are using sophisticated tier-three words in conversation!

**EDH:** Would you say the kids are more engaged?

**MICHELE:** Oh my gosh, they love it. My husband and I used to joke with our own kids. They’d come home from school, and we would say at the dinner table, “What did you learn today?” And they would say, “Nothing.” And my husband would then say to them, “Well, then don’t go back.”

And then once they got to a knowledge-centered school we’d say, “What did you learn in science today,” or “What did you learn in history and geography?” And they talked and talked about it. Those are the conversations that the kids themselves are having. And I will tell you, the parents of our knowledge-centered school will say to me, “You know, Dr. Hudak, I cannot get over, my son and my daughter come home and they are excited about school.” When kids come back after the summer, they cannot wait to come back to school. There’s not this dull “Oh gosh we’re here again and we’re filling out packets of worksheets again.”

These school districts are looking for silver bullets to end the achievement gap, but really, it’s not that hard. **Even our neediest kids are now freshmen in college.** These were kids that came through my third-grade classroom – struggling students. But by the time they got to the eighth grade, they weren’t struggling anymore.
CATHY ON THE CONTRAST BETWEEN CHILD-CENTERED AND KNOWLEDGE-CENTERED SCHOOLS

CATHY: I spent fourteen years in what I would consider to be a more child-centered classroom, in which I was a primary teacher from preschool to sixth grade. I refer to the child-centered classroom as pocketed, isolated learning. We’d do one thing, then we would go to a different thing. The subjects weren’t connected. So, we did our best. We’d have our standards, and we’d follow guidelines set by the school district.

EDH: Tell me something about the difference between the two kinds of schools.

CATHY: I wouldn’t even know where to start. I will tell you my first memory of being a parent and completely being overwhelmed with emotion by what my child was getting at the knowledge-based school. I had a sixth-grade student who was in a child-centered school, and I had a first-grader who was at a knowledge-based school. We were having dinner at the dinner table, and I remember this like it was yesterday.

As most parents do, we said to the first grader, “So what’d you learn in school today?” And she said, “Mama, we’re talking about Mesopotamia.” Out of my peripheral vision, I could see my sixth grader at the end of the table with her eyes wide open. My first grader continues to go on about how they’re learning about cuneiform and how Mesopotamia’s considered the cradle of civilization because every civilization since then etc., etc. She’s going on and on. And I remember Taylor, my sixth grader, putting her hands down on the table, and saying, “Mesapawhat? Mama, I’m in sixth grade and I’ve never heard of Mesopotamia.” My husband and I made eye contact, and I just said, “See? See? This is why we made the change we made.”

This epitomizes the difference in the education they had. Taylor was the proverbial oldest child. We read to her every night. She had all the advantages. The other four came boom, boom, boom. I was in grad school, so we were busy. We didn’t read every night. We didn’t do everything we were supposed to do.

But despite that, those later kids flourished in their knowledge-based primary and middle schools in a way that absolutely changed our family dynamics. Instead of going to the beach every summer, we would go places like Ellis Island or Washington, DC.
Yes. I know that might sound goody-goody, but they wanted to do it. From a parental perspective, you couldn't give me enough time to speak about the difference in education it makes having a shared body of knowledge that builds up over time. When they’re in the younger grades, they grow this small seed of knowledge, and then as it’s continued, it cycles up and you’re adding to it. It becomes that whole association and assimilation idea that I learned about in undergrad but was never truly able to help my students gain access to. I knew they had it in their minds somewhere, but they were never able to find it, because they had lots of little seeds, but nothing built up to a wider scheme of knowledge they could access and add to.

I see that that’s what a coherent knowledge-based school does. Students can retrieve and connect things. As teachers, we’re not having to guess about their prior experiences. We can absolutely tap into those prior experiences, and we can help them access them.

In the past, at a child-centered school, it was like, “Do you remember that?” “No.” But now we can specifically say to a fifth-grade student, “All right, so do you remember when you were in second grade, and you learned about President Lincoln’s desire to keep the Union together?” And they all say, “Yes!” So, we as teachers, are empowered to be able to specifically tap into that important resource that helps students build their knowledge forward.

EDH: It seems to me that if I can interpret what you are saying, our memories are connected to specific knowledge. To build on past learnings, and even to communicate with the class, you need common reference points. If you can depend on the class having some common background knowledge, then your communications with all the students are better understood.

CATHY: Absolutely. The way that I would compare the two is this: child-centered schools tend to be more compartmentalized. We take our students on day one and we go as far as we can with them until day 180. But everything is kind of disconnected and self-contained, and it’s different from student to student. Math did not connect to science, which did not connect to history or to language arts.

EDH: I take it in your child-centered days when you received students from somebody else’s class, you couldn’t depend on all the students knowing the same things, could you?
CATHY: No. I couldn’t depend on students to know anything. Here in Charlotte in the child-centered county school, we had five second-grade classrooms, and I was teaching third and fourth grade. On day one of third grade, my second graders would come in with all different kinds of content knowledge. It was “standards-based” so theoretically they should be coming in with the same standards. But the way that they got to those standards could have been any subject matter whatsoever. It’s much harder to make significant progress with those students.

EDH: It seems to me that a teacher can depend on certain background knowledge; the students are themselves making more of a community among themselves because they share some of the same background knowledge from the previous grade levels. So, it would stand to reason that a kind of culture and unity would develop in the student body itself. Is that what you’re telling me?

CATHY: A third-grade class at one of the knowledge-centered schools I oversee here in North Carolina is in the middle of studying animal classification. On a recent visit I stepped back and took myself out of the conversation. The teachers had been teaching a long time in child-centered schools, one for fourteen years, the other for twenty-plus. They were both talking about how this is the first time in their teaching career that students are so excited about what they’re learning that they’re checking books out of the public library. One student brought a snakeskin in, and another an alligator necklace that someone gave him. The school itself is becoming a community. They all have a lot they can share. They have all this knowledge now, and these kids are learning how to access it outside of school. That’s so exciting.

EDH: Any final thoughts?

CATHY: I always try to tell skeptical parents and teachers this: “Think about the range of students that you have in your classroom who all are excited by this content. And because that content is so engaging, think how much easier it is to use this content to narrow those gaps and extend students even further. You can do so much more in terms of writing when you put second graders in an authentic situation where they’re writing a persuasive letter to President Lincoln from the perspective of an abolitionist. Think of how you can get your students to understand and be more empathetic
about our immigration situation today when they have gained knowledge from the immigration history that they learned in second grade.

For me, I don’t know that I would still be doing this if I did not move to a knowledge-based classroom—because I was so frustrated. In 2007, when I was able to move and could teach something besides reading skills and math skills, I said to myself: “Oh my gosh, this is why I came into teaching.”

**EDH:** I wanted to ask you one other thing. There’s a subtle decline of patriotism in the country that the Gallup poll keeps recognizing every year, and I’m wondering whether this sort of communitarian approach encourages allegiance, the idea that we’re all in this together and need to make our country better.

**CATHY:** From my perspective, the two things are connected. In a knowledge-based school, the students in the music room are practicing the “Star-Spangled Banner”; in another classroom, they are studying the American Revolution—so many opportunities to develop citizenship thinking beyond the school community. Again, you’ve got that shared body of knowledge. I see more singing in the knowledge-based school. I see more general school-wide assemblies where students are talking about current events, or talking about our national heroes of all races and backgrounds.

**EDH:** Absolutely. The original common school idea that “you kids are the upcoming citizens, and you will define the country” was paramount in those early days. Also, the idea that the more unified we get, the more competent we get, because the more you can communicate with one another, the more competent the country gets.

**CATHY:** Absolutely. In a child-centered school, everything is so isolated and compartmentalized. I recognize for the most part there are really good teachers out there and they’re working really, really, really hard. But when you are so focused on what I have to teach my fourth graders, for them to show proficiency on the end-of-grade test, skills become your focus. But when you are focused on the shared curriculum, your perspective really opens up. As a teacher, it puts us back where many teachers were when education was more successful, and we looked at the student in a much broader sense as a future citizen, and not just, “I’ve got to get this kid to pass a test at the end of the year.”

**EDH:** It makes sense to me. Absolutely.
**Effect on Low-Income Students**

CATHY: I’m now an instructional coach for a beginning knowledge-based school in a very high-poverty situation. Some of our kids are homeless, some of them live in a hotel. It’s a very sad situation. This school is now currently in its fifth year, and we are starting to see remarkable progress. What it’s all about is being in those hallways and hearing the kids saying, “Oh, I remember learning that in first grade,” and their being able to build from there. And watching them in sixth grade talking about the Mayans that they learned about in fifth grade. You’re seeing a change in school culture. The children are so excited! It has been hard because the teachers have to go through a lot of change in mind-set to move from a child-centered curriculum to a knowledge-centered one. But now, for the first time in its history, this high-poverty school has moved way up in the rankings.

**What Shall We Conclude from Cathy and Michele?**

I’m enormously grateful to Cathy and Michele for these appalling revelations and insights. The effect of incoherent elementary schooling is to foster national incompetence and social injustice. Such educational incoherence does not induce critical thinking which depends on relevant knowledge. These two teachers have explained why current methods encourage ignorance that enables voters to be deceived, and scoundrels to flourish, just as Washington warned us in his Farewell Address.

And let me repeat one telling exchange with Cathy:

CATHY: There was a lot of variation among the classes. We had five third-grade classrooms. You’re now looking at 125 kids coming from every classroom with hopefully the same “standards-based” education, but not any kind of specific content. I could have taught those standards through an exploration of astronomy, or the rain forest, and my fellow teacher might have taught the same standards through a completely different subject matter—a novel or an old textbook or something she found from a secondhand exchange.

EDH: So different classrooms at the same grade level in the same school are teaching different content?

CATHY: Correct. There was no shared content at all.
“There was no shared content at all.”

Consider the hardship this works upon the teachers and students—and, most of all, upon disadvantaged students. The only time disadvantaged students can overcome their disadvantage is when the school lessons are based upon prior knowledge and concepts and vocabulary that have been developed in prior classes within the school.

But, in our public schools, there is no coherent and common prior knowledge and those students do not overcome home disadvantage. Child-centrists speak sagely about topics being age-appropriate or not age appropriate. Few research psychologists agree.

All this unfairness and second-rate performance is excused by the incorrect claim that our schools are teaching general skills of reading comprehension and general skills of critical thinking. But the fact that these do not exist has now been known in cognitive psychology for a long time. One could not invent a less fair system than one in which there is zero opportunity for the concepts and language of later classes to build upon earlier classes.

It is a system in which content decisions are left up to individual teachers. This second-rate arrangement and unfairness are not the fault of our teachers. It is a consequence of the firm reluctance of our state officials to get specific about grade-by-grade topics and enable near and far transfer. But they are not to be blamed if their expert advisors speak sagely the century-old slogans of child-centered, “age-appropriate” education. What works and is appropriate depends greatly upon what has already been learned. Our states deeply need legislators who have learned enough about the cognitive issues and the outworn slogans of child-centered to sponsor the five-topic principle for each elementary grade.

Both social justice warriors and patriots should be aware of these decisive technical facts about our educational incoherence and unfairness. In my experience, we cannot depend upon radical change from our education schools even at our top universities – so ingrained is the child-centered tradition, with its persistence in incorrect notions about all-purpose reading levels, and all-purpose critical thinking skills.

Our state legislators must require a minimal grade-by-grade core topic sequence in our public schools. It’s an absolute requirement for universal
near transfer and far transfer; and ultimately for our nation’s unity, intelligence, and fairness.

“Near transfer—Far Transfer.” Can be a successful slogan? It would show that you are in the know about education, and that you are in fact in favor of leaving no child behind. And that you are willing to work to elect governors and legislators with enough courage to withstand the sharp knives and fierce slogans of child centrists and multi-culturists.

But, finally, the wider public must be made aware that our children need a grade-by-grade core of knowledge in order to have a basis for all students to learn something new. Governors and legislatures must insist that every time they get expert advice that at least one of the experts is an informed cognitive scientist willing to state the following facts:

There is no such thing as the following:

- A generalized critical-thinking skill. (See Chapter 11)
- A measure of text “readability” isolated from topic-relevant knowledge. (See Chapter 12)
- Age-appropriate” texts isolated from topic-relevant knowledge. (See Chapter 12)
- There is no such thing as a top educational system that
  - Lacks a specific grade-by-grade topic sequence (essential for transfer)
  - That follows “child-centered” principles (incorrect)
  - That avoids whole-class instruction. (inefficient)

Any one of the United States that followed these principles and avoids these mistakes would rise to the top in excellence and fairness. All our states need these reforms especially in the wake of the setbacks from COVID.
PART II

A Path to Educational and Political Renewal
Chapter 10

“Robust” Longitudinal Data On Shared Knowledge Schooling

In spring of 2023, Professors David Grissmer and Daniel Willingham issued a press release about an eight-year longitudinal study that Grissmer, the lead researcher with a large team, had carried out. The results were stronger and clearer than the bulk of studies in reading research. Nobody could find fault with the punctilious methodology that Grissmer had used. (He is well known for his punctilio, and in fact, he declined to communicate with me at all, over the years, since the Core Knowledge program was the “treatment” program.)

In this chapter, I’ll quote the press release in full and then discuss the commentary that the Grissmer research generated, which reveals the powerful pressures American researchers are under not to rock the child-centered boat.

In recent years such boat-rocking has been rhetorically dismissed by being identified with political and cultural conservatism. I hope the earlier chapters of this book have made clear how paradoxical and incorrect such a moral/political argument is. The child-centered approach to reading has deeply harmed the equality of our early education and has, therefore, deeply injured the cause of social justice.

Basically, the current child-centered defense of its long-term dominance boils down to ignoring the nature of literacy and the sources of earning power in our internet age. Our era has exacerbated the financial importance of literacy. Speed of verbal comprehension and communication
and, thence, speediness of decisive action have become more important than before. This means that the Philip Cohen curve correlating teen literacy and adult income may become an ever-stronger correlation.

Hence the argument against “imposing the same ‘Anglo’ culture on everybody;” while it sounds like a mini declaration of independence, it is just the opposite. It closes off opportunity. It unintentionally lowers the future income power of grade-schoolers who come from disadvantaged circumstances. Parents in the South Bronx understand this well.

This paradox needs to be understood by every American interested in social justice and greater income equality. The chief disadvantage (besides physical malnourishment) of disadvantaged K-8 pupils is a language/knowledge disadvantage. Advantaged children understand better the language of the classroom and the language of the books that they will read than do disadvantaged children. They have bigger grapholectic vocabularies to start with.

A major ingredient of early disadvantage, then, is a deficiency of grapholectic knowledge. Unless deliberate arrangements in the school curriculum diminish that grapholectic gap, our schooling is unlikely to overcome the literacy gap between advantaged and disadvantaged children. By contrast, it’s been demonstrated that a carefully sequenced, commonly shared curriculum will diminish the gap between advantaged and disadvantaged children. Of equal importance, that same systematic approach will enhance the grapholectic knowledge of advantaged children as well. The following press release was issued by the two main researchers, David Grissmer, Daniel Willingham, and John Byrnes:

**Robust Effects of Core Knowledge Curriculum on Reading**

*The results of a long-term study conducted by University of Virginia researchers show that the Core Knowledge curriculum had a large beneficial effect on state reading test scores. The study is using an experimental design to evaluate the long-term effects of any knowledge-rich curriculum on reading scores in elementary school.*

*The cumulative (K-6) long-term effect for all students was approximately 16 percentile points. To put this gain into perspective: U.S. students placed 15th among 50 countries taking the 2016 PIRLS 4th grade Reading/English test, but national student gains similar to the*
gains realized in this intervention would place the U.S. among the top five countries.

Although short-term RCTs [random control trials] on the effect of a knowledge-rich curriculum have been published, this is the first long-term study and the first to show sizable effects on a state standardized test.

Eight of the nine schools in the study had mostly the children of middle- and high-income parents. At the remaining school, the curriculum showed even larger effects on English Language Arts, and significant benefits in math and science. These gains were large enough to eliminate the achievement gap associated with income.

The six-year study used a lottery methodology: 2,310 students applied to attend one of nine oversubscribed Charter schools that use the Core Knowledge Curriculum, beginning in kindergarten. The 688 students selected in the lottery were compared to unselected students who attended school elsewhere. All schools were in the greater Denver area. The outcome measures were grade 3 through grade 6 scores on the Colorado state-wide PARCC (Partnership for Assessment of Readiness for College and Careers) tests for English Language Arts and Math. Scores from a state Science test (designed by CTB/McGraw-Hill and administered only in grade 5) were also assessed. (NOTE: the treatment began in kindergarten and extended to grade 6. The ELA and Math measures were taken yearly from grades 3 through 6, and the science test was administered once, in Grade 5.)

Separate analyses were conducted for Intention To Treat (ITT) and Treatment On Treated (TOT). Treatment on Treated refers to the effect of the Core Knowledge curriculum on test scores when students actually experienced the curriculum. The TOT effect size was 0.473 across grades 3-6 for English Language Arts, with significant effects at each grade. Effects were not significant for math. The overall TOT effect size on the science test administered in Grade 5 was 0.30, a significant effect.

This effect differed by socio-economic status of student bodies, however. In the eight schools with middle- and high-income students, the effect size was 0.445 for English Language Arts and non-significant for math. For the low-income school, effects were larger: 1.299 for English Language Arts and 0.997 (a significant increase) for math. When the
science test scores were analyzed separately by parental income, the effects were positive but not significant for both groups.

Intention To Treat refers to individuals who were meant to be exposed to the treatment. In this case, these were students who won the lottery; some lottery winners chose not to attend Core Knowledge Schools and so did not receive the treatment. The ITT effect size was 0.241 across grades for English Language Arts, with significant effects at each grade. Effects were not significant in math. The overall TOT effect size on the science test administered in Grade 5 was 0.15, a significant effect.

In the eight schools with middle- and high-income students, the effect size was 0.201 (a significant effect) for English Language Arts and non-significant for math. For the low-income school the effect size was 0.944 for English Language Arts and 0.735 (a significant effect) for math. When the science test scores were analyzed separately by parental income, the effects were positive but not significant for both groups.

An unexpected result in this study was differential attrition by gender: in short, the parents in this study reacted differently when a boy lost the lottery than when a girl did. Likely because parents view boys as less mature at kindergarten age, they were more likely to keep boys at home for one more year and try the lottery again, or to pay for a private school. For girls who lost the lottery, parents were more likely to send them to the local public school. This differential attrition biased results and required new analytic procedures to assure unbiased results; these unbiased results are reported here.

The Core Knowledge Curriculum is based on the ideas and research of E. D. Hirsch, founder of the Core Knowledge Foundation. The curriculum has been in use since the 1990s and is currently used in some 2,000 schools in the US. It centers on a sequence of topics that integrates knowledge from the seven subject areas across K-8 grades to systematically build their knowledge and comprehension of the world. Core Knowledge has a K-8 integrated set of teacher manuals for the specific topics in each year as well as associated student reading materials. The Core Knowledge Foundation also provides professional development and support opportunities for teachers and principals across the nation.
The Response from the Field

This press release was largely ignored, but it was the subject of an earnest report in *Education Week*. That publication reported two reactions before the whole subject was dropped.

Liberal vs. Conservative reaction went this way: *Education Week* quoted an expert who complained that the Core Knowledge curriculum is guided by a “master narrative.” That sounds ominous—perhaps even white supremacist. It implied that the Core Knowledge curriculum is a tendentious, undesirable enterprise that can be dismissed without going into details.

The second response was: “Well, that’s just one experiment.” The implication was: “Let’s wait and see. Let’s not get too excited; maybe another seven-year experiment will yield a different result.” That makes a solid and punctilious piece of research sound like the toss of a coin. The upshot of both responses was: “Let’s not get unsettled by Professor Grissmer’s meticulous work. Another piece of meticulous work might yield a different view.

I’ll ignore the vague white supremacist implication of the “master narrative” rhetoric as empty rhetoric. The “just one experiment” statement deserves comment because the weakness of such stand-pat reactions should have a bright light shone upon them if we are to elevate our literacy and unity.

I’ll devote the rest of this chapter to the “just one experiment” objection, which assumes or pretends to assume that what is at stake is how effective the particular Core Knowledge curricular sequence is. *But what is at stake is the shared knowledge structure of early education vs. our current child-centered, tokenistic, multicultural approach to teaching the grapholect.*

In fact, there are massive supporting studies which I’ll now describe. There are zero credible studies that contradict the Kim Transfer Effect showing the superiority of teaching shared knowledge. The Grismer and Kim studies complement each other. And so does a huge grammar-school experiment in France conducted with twelve million pupils over twenty years.

Just One Study? Transfer Effects, and The French Elbow

With a lot of intellectual and financial, as well as emotional investment
in child-centered education, there's little incentive to pay much attention to or express enthusiasm for the recent Grissmer report showing that better and fairer results are achieved by a shared knowledge approach in early schooling than by a child-centered approach. The main reaction is silence—which was how the American educational community also greeted the Bailin-Grafstein book on readability—silence with no reviews—not even negative reviews (which would have been hard to write on such a fine book).

The report on a seven-year study by Grissmer, a researcher known for meticulous work, would be hard to ignore completely. But it was commented on dismissively in the sparse reports that were offered. Yet, after his report, to continue committing the nation-harming technical mistakes of child-centered education would be unwise. So, yes, let's have even more massive studies, as critics demand. They will not show different fundamental results.

For, right now, we have learned enough about implicature in human languages to assert that further studies will show precisely the same kinds of results. To disambiguate and amplify meaning requires specific, relevant background knowledge. Period. End of (that) story.

The purpose of the rest of this chapter will be to describe further evidence on that score. First is the direct and indisputable inference that can be drawn from the Kim study. It showed that students who have received shared knowledge gain collectively more shared knowledge on their own. Moreover, it also follows that by means of that collectively shared knowledge, their teacher is enabled (as George A. Miller explained) to use that shared foundation to convey new knowledge effectively to all the students in the class (i.e. achieve “far transfer” for all). That greater quantity of conveyed knowledge to all students in the class is simultaneously a plus for learning and a plus for equality.

Moreover, there are no controlled studies showing the contrary—that you can achieve greater equality with child-centered approaches over shared knowledge approaches. But we do have a remarkable study involving twelve million pupils with meticulous record-keeping of their socio-economic origins—a level of massive and precise record-keeping equal to that of smaller empirical studies. Anybody familiar with France will nod when I describe their centralized record-keeping as “meticulous.”
From France, the most massive study imaginable has been conducted by the Ministry of Education. It was a twenty-years-long highly controlled study using the same probes at ten-year intervals and representing hundreds of thousands of children from all parts of France who were all simultaneously undergoing similar “treatments”. The methods, conditions, and controls of the experiment are detailed in *Lire, écrire, compter: les performances de élèves de CM2 à vingt ans d’intervalle 1987-2007*. The study is instantly available online and instantly translatable by Google Translate.

It would not be reasonable or responsible to wave these results aside as just being French. They duplicate the Grissmer finding that reading scores will rise with shared-topic instruction for all pupils, regardless of home background. And that reading scores will fall for all students when individualized reading topics are used. But the declines will be greatest for disadvantaged students. That was also the upshot of the Kim study, and it is precisely what has been determined with data sets representing twelve million students over a twenty-year period in France.

So, there is not “just one study” showing the technical superiority of shared-knowledge schooling! That comment conveniently interprets Grissmer et al. as probing a single proprietary language arts program, Core Knowledge Language Arts. But that program did not even exist during most of the seven-year Grissmer study.

Rather, the key variable was the whole shared-topic curriculum that, as the Kim study showed, enables further learning and vocabulary building by all students, regardless of home background. A shared-topic curriculum (In the Grissmer study, it was the Core Knowledge Sequence.) yields far better reading results than an un-shared-topic curriculum.

And that raises a too-often ignored but key technical point: Results secured by schooling as determined by reading tests can never be reliably attributed solely to a language-arts program. Reading researchers rightly take account of the home contribution to literacy by parceling the pupils into socio-economic categories. But in addition to those SES categories, researchers also need to take account of the whole of the child’s curriculum when reporting on progress in reading.

That was a crucial influence on the favorable Grissmer findings—the shared knowledge character of the Core Knowledge instruction vs the
child-centered character of instruction in the control group. That is what was being determined by the Grissmer study in Colorado and by the *Loi Jospin* study in France. (to be described in a moment.)

All such findings depend on results from reading tests in some form. How else could one probe pupils’ reading ability? So, let’s remember the Willingham doctrine about reading tests: “A reading test is a knowledge test in disguise.” An elementary program that systematically builds knowledge shared by literate people in the wider nation will yield better reading results than a program that doesn’t build such publicly shared knowledge. Current relevant science shows the Core Knowledge shared topic sequence was the chief cause of the superior reading results found by Grissmer.

So, although the Grissmer study is the only *controlled longitudinal study* of the effects on education equity and attainment by the specific Core Knowledge curriculum, it is far from the only study showing the effect on verbal comprehension by shared knowledge curriculums. The evidence on that basic principle is overwhelming and outlined in my book, *Why Knowledge Matters*. To pretend that it’s just one relevant experiment is highly misleading—not intentionally so, perhaps—but highly misleading, nonetheless.

Moreover, there’s another inherent advantage to topic commonality in a class besides the “near transfer” that is described in the Kim study. Common topic knowledge among the members of a class enables the teacher quickly to effect *far transfer* for all students in the class – an immense help to fast learning and whole-class equality. That built-in equality principle, independent of home background, is immensely important for social justice.

**ANOTHER EXPERIMENT: THE FRENCH ELBOW AND THE LOI JOSPIN**

That is fully confirmed in the massive French study which I’ll quickly summarize. The study was conducted by the National Ministry of Education after the passage of the *Loi Jospin* in 1989. The French start schooling at age 3. What I’ll call the Jospin experiment in France was a de facto longitudinal study of elementary pupils over a period of twenty years.

The research was conducted by the French Ministry of Education, and the research methods were punctilious. Tests of eleven-year-olds were conducted over the nation using the very same test items over three
points in time over a stretch of thirty years 1987, 1997, 2007. In 1989, the loi Jospin was passed, which required thenceforth all the public schools in France to adopt a child-centered approach. It was repealed in 2000, after its effects were shown to be unfavorable.

The law required French elementary schools to stop teaching a common curriculum and start teaching American style “individualized” learning. “une pédagogie de contrat » dans laquelle l'élève fixe avec son enseignant des objectifs pour organiser son apprentissage et sa progression.” That is, “a contractual pedagogy in which the pupil decides with the teacher the goals of her apprenticeship and its sequence.” In France, the approach was named l'élève au centre de l'école, that is, child-centered learning.” Reading scores fell significantly and unequally. The following chart is taken from an official publication of the Ministry:

It is an experiment of immense value and significance. I call it the French elbow. It was carefully controlled. The exam in all three years ’87, ’97, and ’07 was the very same exam, and the representative geographical and sociological data was the same. (And already, by 2000, the results were sufficiently negative to cause a repeal of the law.)

The reading scores being recorded are those of eleven-year-old boys and girls, which means that the 1997 scores were of those children whose earliest years belonged to the pre-Jospin era. (The French start school at age three!) So the lack of steepness in the 1997 decline is probably owing to their having excellent schooling in their earliest grades before the
Americanization process was fully in place. When it was fully in place from earlier years, you get a steep descent. Thus, you get what could be named “the French elbow.” When the Americanization process was complete, the French began getting American-style results. We are currently twenty-fifth in the Program for International Assessment (PISA) rankings, and the Americanized French fell to twenty-sixth. If the repeal of the Jospin law leads in to a return to topic commonality in France, my bet is that the centralized French will pull themselves up faster than we will.

And here’s another consideration worth pondering: Lionel Jospin (the minister of education when the law was passed) is a distinguished socialist who later became Prime Minister. He was highly concerned with equality and social justice, but he was incompletely informed about cognitive psychology. He could not know that his law would have an ill effect on social justice. Our child-centered tradition was led by a man of the left—John Dewey. Were he still with us, I think he would change his view just as Jospin did. Child-centered instruction works against the child, especially if she happens to be disadvantaged.

Knowing what we have recently learned about the social inequalities induced by individualized, child-centered education, I hope Americans of both political leanings will want to make peace on that issue for the sake of the United States and the ideal of equality of opportunity.
Chapter 11

Updating Our Ideas I: Critical Thinking Is Not a General Skill

The “general” skill of critical thinking is an idea like the “general” skill of reading that is deployed to support child-centered education. Both general thinking levels and general reading levels are scientifically suspect and for the very same reason. Both are conceived by child-centered educators as general skills. But reading skills and critical thinking skills are both dependent upon domain-specific knowledge. Hence, they are not and cannot be—general skills.

No doubt there’s such a thing as general intelligence, just as there is such a thing as general athletic ability. But everybody understands that being good at basketball does not automatically make you a good tennis player. You have to learn and practice and practice tennis. Something analogous is true of intellectual domains. How well you understand a specific text (or a specific oral utterance) depends on whether you correctly understand the writer’s unstated implications. And those inferences depend on your having specific domain knowledge relative to the text—not just a generalized “reading skill.”

A critical-thinking test is—like a reading test—what Willingham terms “a knowledge test in disguise.” Real-world problems that require critical thought normally do not require firm logical inferences like these:

All men are mortal. Socrates is a man. Hence Socrates is mortal.

Even a very young, inexperienced child will get that sort of “critical thinking” right.
All Hershey Bars are good. This is a Hershey Bar. This is gonna be good.

But what about critical thinking in more problematic domains? In real life, you are less likely to encounter universal premises like “all men are mortal” than real world situations where more complex thinking is required. It’s usually the probabilistic sort of problem that requires domain-specific knowledge. Going back to our athletic analogy: Is this a good situation to call a pass or to call a run in a football game?

In such a case, you don’t have practical universal principles that you can bank on like “all men are mortal” or even “always pass when you are on the opponent’s 45-yard line and it’s second down.” In real-world critical thinking, you do not have an all-Hershey-bars-are-good, all-men-are-mortal sort of situation. Critical thinking is normally needed in circumstances where, even if you reach the most probable conclusion, you can still be wrong.

Moreover, to make a good probabilistic decision, it won’t usually be helpful to have studied a lot of inferential word problems. It’s far more helpful to be deeply knowledgeable about the domain-specific probabilities in the individual case than about some cooked-up logical inference in a model case. Doing a good scouting job on the opposing football team yields far more useful knowledge than having general knowledge of football or of critical thinking. Did I need a critical-thinking course to determine the probabilities? No, I needed to spend my time gaining specifically relevant empirical knowledge about the opposing football team.

How did we get so caught up in our misleading faith in these non-existent all-purpose skills of readability and critical thinking? Why have those two ideas been so widely inculcated in teacher training in the United States? It’s because we wanted all-purpose reading and thinking skills to exist, so we could support the misguided individualism of child-centered education.

A clue lies in the timing of our introducing those two ideas of general reading and thinking skills into our teacher training. Those two ideas are needed to enable the forward march of child-centered education (CCE). For CCE is based on the principle that different children have different natures; hence the best, most natural mode of learning general skills by that individual child will be through content that is attractive and absorbing to that individual child.
I discovered from the excellent online *Stanford Encyclopedia of Philosophy* that the critical-thinking tradition in pedagogy was started by the father of our child-centered education, John Dewey. Behind his hardheaded philosophizing lay the heart of a romantic. Dewey believed that Nature would provide (a word meaning to look ahead) and that history is marching forward to Nature’s tune. But that Hegelian faith in progress is demonstrably incorrect, at least in its effect on our SAT reading scores, as Professor Hayes has usefully pointed out.

Both of those child-centered notions—readability levels and critical thinking expertise—were used to enable child-centered education and avoid “lockstep” education. But the existence of such general skills is not accepted by mainstream cognitive psychology. The premise is false. The skill of reading and the skill of critical thinking are both occasion-determined, domain-specific skills. In a long, illuminating article on critical thinking in the online *Stanford Encyclopedia of Philosophy*, I find most convincing the views and evidence among those who insist that critical thinking is subject-matter-specific. That’s precisely what our two veteran teachers concluded about applying critical thinking in the classroom. I’ll requote that excerpt from their interview.

**Critical Thinking About Nothing in Particular**

**MICHELE:** Yes. You know, the idea was if you want kids to think critically, you need to let them solve their own problems, and I guess my argument to that is: give kids a rich curriculum and let them ask questions about it, and there’s your so-called critical thinking.

**EDH:** On that point: did you actually spend time on critical thinking as a process?

**MICHELE:** Yes, I would have critical thinking packets that I gave my kids, but I didn’t see that it made any difference.

**EDH:** Let us go into that just a little bit more, if you don’t mind, because I’m interested in how much time was spent on your critical thinking packets, and what is a critical thinking packet.

**MICHELE:** Sometimes I had to make it up. A lot of times I would go to Barnes and Noble, which had a teacher’s section, so
this was before the internet was widely used. I would find a little reproducible book that would say “Critical Thinking.” There would be things like analogies and logic puzzles, *not content, but things of a puzzle-type nature*. I would buy it, copy it, put it in a packet, and then I would say to the kids (who were way beyond what I was teaching that day in say, mathematics) to use their stapled packets. They would engage in something completely different from the math I was teaching that day.

What I found out later is that in a knowledge-based, instructional school, children don’t have a lot of extra time to waste on so-called critical-thinking tasks. Every instructional minute matters because we have so much content to deliver. In a typical child-centered school, teachers will put these critical-thinking packets together for kids because they have more time on their hands.

At my current knowledge-based school, we just don’t have any time on our hands for critical-thinking packets, because every subject carries equal weight. In a knowledge-based school, you are reading, you are writing, you are talking, in every subject area.

I hope Michele’s experiences resonate with teachers who may be reading this. Nowadays, if you go to Amazon and type “critical thinking,” you find expensive workbooks with “Critical Thinking” in their titles. But I cannot find in the research literature any actual experiments that determine the actual effectiveness of “things like analogies and logic puzzles, not content, but things of a puzzle-type nature.”

Which mode of education best induces accurate thinking about a new subject matter? “General” thinking skills or specific knowledge? Common sense says, “Learn the subject matter.” More accurate inferences emerge from people who possess the most relevant empirical knowledge—quite apart from their technical training in the “skill” of critical thinking. In concrete situations, local probabilities give us more to work with than unweighted logical implications.

I find *no* research comparing the real-world performance of a critical-thinking expert (untutored in subject matter) with the performance of a subject-matter expert untutored in critical thinking. The paucity of research on this key subject is telling. My critical-thinking instincts tell me
that until such empirical determinations are forthcoming, those teachers that Michele reported on are right to avoid wasting time practicing skills that have no real-world function or application.

It’s not a good example of critical thinking to imply uncritically without data that it’s a general skill instead of a topic-specific skill. It’s simply a convenient concept to enable the child-centered approach. It’s a parallel error to the incorrect readability concept, which was invoked to enable individualized, child-centered education. Shared knowledge education works better for the child than child-centered education. Recall Michele’s experience with her own children:

MICHELE: My son Ethan attended a knowledge-centered school, and it was the end of third grade. My husband and I were out to dinner with him one night, and my husband said, “So Ethan. What was your favorite subject in school this year?” And he said: “Rome.” And he began with the story of Romulus and Remus, and I’m not exaggerating when I tell you that for one hour we sat and listened to him recite the rise and fall of the Roman Empire in detail. Ethan was in the first class of eighth graders that experienced a knowledge-based school all the way through elementary school. They were our test group. They are all freshmen in college now, and their awards and scholarships and accolades, and university choices are just unbelievable. (My Italics.)
Chapter 12

Updating Our Ideas II: Reading is Not a General Skill

When the Common Core State Standards were issued in 2010, its reading standards did not rely on the term “readability.” Instead, the term “complexity” was used. Among psycholinguists, “readability” had already come under a cloud. With the kind permission of the authors and publishers, I shall be quoting in the next chapter an excerpt from an important book entitled Readability.34 It carefully explains that readability depends upon shared background knowledge between author and reader, and hence is not a stable feature of texts.

I sent a review of that readability book to a distinguished educational journal. It declined to publish my review. I then realized that sending the review was like sending a heretical article to a sectarian religious journal. From the beginning of child-centered education, “readability” with its “reading levels” has been an inherently necessary principle. To disconfirm readability would call into question tens of thousands of classroom libraries.

(These would still be available under a shared knowledge approach—but they would no longer be part of a curriculum. They would be replaced by the old-fashioned shared readings designed to attain SHARED KNOWLEDGE for that grade level, thus enabling all the pupils to advance to the next level.)

Current psycholinguistics has rejected the “general” skill of reading. A 2019 research summary is to be found in Psychological Science.35 But there’s no need to consult technical studies. Anyone can perform her own experiment by examining a reading test and determining that, to answer the questions correctly, one needs relevant background knowledge not stated in the passage. One can also (by critical thinking) deduce the need
for specific background knowledge by recognizing the inherent ambiguity and uncertain implicature of human language.

Human language usually requires disambiguation and amplification to be fully understood. A good example of a problematic “readability” score would be “A Modest Proposal” by Jonathan Swift, which recommends solving the overpopulation problem and the hunger problem simultaneously by cooking and eating human babies. Irony is just one of the ways that human language requires silently shared knowledge.

George A. Miller (the psychologist whom we quoted on the uses of metaphor in teaching) was famous for his essay on the magical number seven—the number of items you can hold in short-term memory at any one time. If a child or an adult does not quickly make definite sense of a phrase or sentence by applying the right background knowledge before it falls out of memory, then the sentence is likely to be misunderstood or simply fail to be understood at all. A wrong answer is likely to be chosen. Following the mistaken theory of reading “levels” and choosing the wrong answer—that’s precisely what has happened to American children when they now take reading tests. American children moved from number one in reading (in 1934) to twenty-fifth in 2023.36

The short-term memory limitation in reading is usefully generalized by looking at an experiment conducted by a Dutch psychologist, Adrian de Groot. It foreshadows the key relation between relevant background knowledge and one’s level of expertise in intellectual skills like reading.

De Groot noticed that chess grandmasters have a skill that amateurs cannot match. Grandmasters can glance for five seconds at a complex mid-game chess position of twenty-five pieces, perform an intervening task of some sort, and then reconstruct on a blank chess board the entire chess position of twenty-five pieces without making any mistakes. Twenty-five pieces! Performance on this task correlates perfectly with a person’s chess ranking. Grandmasters make no mistakes, masters made very few, and amateurs can get just five or six pieces right. (Close to the magical number seven!).

On a hunch, de Groot then performed the same experiment with twenty-five chess pieces in positions that, instead of being taken from an actual chess game, were just placed at random on the board. Under those new conditions, the performances of the three different groups—grandmasters, masters, and novices—were all precisely the same, with each group remembering just five
or six pieces correctly. So much for the notion of general chess-remembering skills. Such general skills do not exist. And that goes for the general skill of reading upon which our current schooling is based.

For the chess grandmasters, it wasn’t their general chess-remembering skills or their “critical-thinking skills” that did the trick. It was their well-learned chess-specific background knowledge! Expert readers, chess grandmasters, and experts in any field do not possess any all-purpose mental muscles that novices lack, and they do not perform any better than novices on formally similar yet unfamiliar tasks.

Nonetheless, experts can perform remarkable feats in real-world situations such as midgame chess positions and language comprehension. How do they manage? What de Groot found, and what subsequent research has continually confirmed, is that the difference in higher-order skill between a novice and an expert does not lie in all-purpose mental muscles or general reading comprehension skills or general “critical-thinking skills,” but rather in what de Groot called “erudition,” a store of specific, quickly available, and relevant background knowledge that has been previously acquired and is quickly available.

Because short-term memory is so very constrained (four or five items, and ten to fifteen seconds) the whole notion that reading skill is an all-purpose topic-independent mastery, with definable levels apart from specific content knowledge, has been a deep mistake. What’s true of reading is also true of math, science, history, and other domains. Topic-specific background knowledge is required. The claim of all-purpose reading skills or all-purpose thinking skills is incorrect.

The skill of reading is not an all-purpose, general skill. It is highly dependent upon a person’s ability in a specific case to overcome the limitations of working memory by means of schemas that can be unpacked and referred to at leisure without one’s needing to remember all the components all at once. They are lodged in long-term memory as schemas for the topic or the domain. A key function of language itself is this labeling mechanism.

That is why the new advances in reading research can be accessed by two open-sesame phrases. If you type in your search engine “domain knowledge” and “topic familiarity,” you will turn up some recent psychological research.
Recent research bores down into the interaction between short-term and long-term memory by means of schemas and verbal labels. And now, with the recent study by Professor Kim and his associates, the theme has entered education schools—a welcome development.

The interchange between working memory and long-term memory is front and center in mainline psychological research. For instance, a 2021 article in the Journal of Experimental Psychology is entitled: “Freeing Capacity in Working Memory (WM) Through the Use of Long-Term Memory (LTM) Representations.” It describes using tags like the verbal label “Ruy Lopez” (a set of opening moves) by the chess grandmasters in carrying out the twenty-five chess-piece positioning task. It enables “erudition” to overcome the time constraints of working memory.

That doesn’t mean that pre-existing, schemas lodged in the reader’s mind need to be fully unpacked within the ten seconds available to working memory. No, you march forward with partial understanding because you confidently know that you have the right gist and that details can be further unpacked when detail is needed.

When we interpret what somebody has said or written, we need to be able to perform two key interpretive maneuvers. We must disambiguate by choosing among potential meanings, and we must amplify and realize unstated implications. And we must do those two things fast—before the phrase or sentence itself drops out of working memory. The shared background knowledge needed to accomplish this feat of verbal interpretation fast is always highly specific to a topic or domain. In sum: there is no such thing as a general reading skill independent of specific unstated topic knowledge shared between writer and reader. Shared Background Knowledge is always needed. Hence the title of this book.

**The Baseball Experiment**

An experiment along those lines has persuaded many teachers that readers need quite specific shared knowledge to comprehend the meaning of a passage. It was conducted by Donna Recht and Lauren Leslie. The two researchers described baseball knowledgeable twelve-year-olds who were slow readers yet who nonetheless performed much better and faster on a baseball passage than expert fast readers who were not very knowledgeable about baseball.
It wasn’t their “reading level” or the “readability ‘of the text’ or their “critical thinking skills” that determined their comprehension of the passage. It was their “erudition” which overcame the severe restraints of working memory. In other words, the reading “levels” of the students were not definite qualities after all. Those who shared baseball knowledge with the author of the story yet who were rated as poor readers were, in fact, much better readers than those whose tests had rated them as top readers. Neither the readability of the story nor the reading level of the children was a fixed quantity. They were both topic-dependent quantities. This single baseball experiment has rightly persuaded many teachers of the variability of “reading levels.”

It proved that “reading level” is not a definite reality in either people or texts. The concept of “shared background knowledge”—SHARED KNOWLEDGE—is a catch-all concept. In any instance, it must include shared topic knowledge. That’s why this famous baseball experiment is so valuable. It removes the vagueness and inaccuracy of “reading level” in both texts and readers. It makes clear that shared background knowledge is a necessity for comprehension which must include not just very general, nationally shared background knowledge but also specifically shared topic knowledge. The whole notion of “reading level” and “text level” is imprecise and unreliable.

But shared topic knowledge is not an educationally useful characteristic—unless and until specific and predictable topic knowledge has been taught and learned by all the readers in the class. That was a key finding of the recent Kim study. In the Recht-Leslie baseball experiment, normally high-scoring readers were out-performed by normally poor-scoring readers. Their SHARED KNOWLEDGE, based on standard reading tests and readability formulas, is at best an approximation. It is an unreliable one. To raise real-world reading abilities for all requires a definite shared-topic curriculum for the whole class, as the Kim experiment suggests.

The Recht-Leslie paper has achieved a kind of immortality because so few studies of reading in the United States have been willing to break out of the dominant “reading level” and “readability level” conception. But as soon as one looks elsewhere in language comprehension—especially in second-language learning—one discovers that “topic familiarity” is a dominant theme. (That is also true for our native speakers, as Recht and Leslie have shown in the baseball study.) This specificity of shared knowledge is exactly what could be predicted from the interchange between highly constrained
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short-term memory and the capaciousness of long-term memory.

Because the working-memory limitation of consciousness cannot be overcome directly, there can be no general skill of verbal comprehension. Each case depends upon rapid access to specific unwritten background knowledge shared between the reader and writer: speaker and listener. Acquiring literacy includes acquiring the shared schemas of a speech community as a way of overcoming the limitations of working memory. This is why shared knowledge is the lifeblood of modern life.

Our ability to read “The cat is on the mat” faster or better than a child is the consequence of our acquiring specific mental software that allows us to transform a task that is arduous for the child into a task that is as easy for us as falling off a log. Our ability effortlessly to convert visual symbols into words and meanings is an acquired system—an “erudition” like that of the chess masters, by means of which we are able to circumvent cleverly the still-unyielding constraints of working memory. On this basic fact of shared knowledge hang all the law and the prophets of educational doctrine relative to reading and modern nationality and communal life.

Despite the narrow limitations of working memory, the wealth of content that can be manipulated by experts through previously acquired “erudition” or schemas is immense: if I already know a lot about baseball, the term “sacrifice fly” can replace a page or two of explanation. Such shorthand representation is a chief time-saving technique of higher-order skills.

The phrase “World War II” is short and easily remembered, but the content represented by the phrase is enormous. It cannot be grasped by those who, however skillful in other ways, lack the shared relevant knowledge. By the time someone had learned the content needed to grasp “World War II,” the immediate task would have long disappeared from working memory.

The phrase “World War II” can be understood and communicated only by those who already share schemas. Shared, unwritten-down knowledge is a key factor of shared language. It is the key to effective nationality. Readability formulas treat only what is written down on the page, omitting what is previously “written” upon the mind of readers. Hence readability formulas are inherently defective. Educational ideas based on such inaccuracies are inherently defective.
Chapter 13

A Recent Refutation of the “Readability” Concept

The dependence of all verbal comprehension on unstated knowledge—described roughly by the phrase “topic familiarity”—carries immense implications for elementary education. We may need to rearrange the classroom furniture and change the schoolbooks. These schoolbooks must be generators of shared knowledge if we wish our nation to become more literate and unified.

Our current practice is to encourage students to choose diverse, individually suitable reading matter, according to the child’s interests. That “child-centered” idea generated current practice and current classroom furniture arrangements. These arrangements depend on the concept of reading levels in books and reading levels in children. But those concepts are no longer accepted in the technical fields of cognitive psychology and psycholinguistics. They say that “topic familiarity” or more generally shared relevant background knowledge is needed to amplify and disambiguate verbal meaning. As the researcher put it in the quoted article from Scientific American:

What we see developing so slowly in our studies of children’s communication is a constellation of knowledge and skills that reflects the child’s interaction with the world and with other people and cultures. The social use of language depends as much on that knowledge as it does on knowledge of a language itself.38

(My bolding.)

The disagreements between the various readability formulas are currently tolerated by the Common Core State Standards. Perhaps that’s because the alternative seems unsavory. There’s a technical need for at least a few common topics known to all pupils. That’s what is needed.
But it would raise protests. That’s why it was not introduced. They knew we’d be lectured about “mind control” and individual differences. Even to consider such a move towards topic commonality would seem to be an American impossibility, given educators’ attachment to the child-centered, constructivist idea.

But common sense and common experience tell us that this individualism has not been a successful approach. It asks the young child to choose a book from the classroom library. Most cultures don’t think it’s a good idea to encourage a young child to be the determiner of her curriculum topics. The effect of doing so has injured both the child and her nation. But common sense aside, the child-chosen-topic idea depends on a scientifically incorrect approach to reading instruction, as two scholars of the subject have shown in some detail.

*Readability* by Alan Bailin and Ann J. Grafstein is an important scholarly and scientific work that has been widely ignored by educators and educational journals. What does that silence say about the scientific punctilio of the constructivist, child-centered state of mind? The elaborate ignoring of this good book suggests an unhealthy defensiveness that precludes progress. It’s as though a religious sect is defending itself by creating a de facto index of heretical books to ignore—implying perhaps that the issue is not resolvable by mere science. The sacralizing of the young child has always been part of the romantic tradition. But we must assert the separation of church and state and assert the union of policy and science.

Science and scholarship will lead to better results than romanticism for national literacy; and greater progress will be made if we attend to the warnings of Bailin and Grafstein who tell us that “readability” and “leveled” readings are incorrect concepts. Towards the end of their book, *Readability*, they summarize some findings of their prior chapters.

With their permission and that of their publisher, I reprint now a longish excerpt from their concluding summary to give the reader an overview of current scientific reservations regarding a foundation of our current ideas and methods that have led to our poor reading scores. My thanks to the publisher and the authors for letting me print this excerpt:
There is no non-trivial set of words that could be assumed to be shared by all readers. Vocabulary knowledge varies by time, geography, culture and ethnic communities. In every area of interest has its own specialized vocabulary. We discussed specialized vocabulary in a variety of fields such as finance, baseball, football, cricket, and medicine, and saw how readers unfamiliar with the vocabulary used in an area of interest may be unable to understand a text.

Another kind of knowledge that affects how readable texts are for particular readers is the knowledge of the conventions appropriate to different kinds of genre. In Chapter 6 we saw how a reader who does not know the conventions associated with a genre or who does not know the genre to which a particular work belongs can seriously misunderstand what a text is communicating. So, for example, a reader who does not know that one of the conventions for drug information relates to presenting information in a way that protects the manufacturer from legal repercussions may well misunderstand the discussion of side effects. A reader who does not know that Jonathan Swift’s (1973) A Modest Proposal is written in the genre of an ironic parody may well misunderstand what the essay is intended to communicate.

Our study clearly indicates that the readability of a text is affected by the degree to which the contextual background information of the reader does not overlap with the contextual information assumed by a text. We would like to point out that this issue does not neatly reduce itself to one relating to race, class, and gender. Certainly, these variables may affect the degree to which a reader has the appropriate contextual background information to read a particular text or kind of text, but these are by no means the only characteristics that affect the contextual information a reader brings to a text. Nationality, for example, is certainly more likely to affect the readability of an American article on the National Football League Superbowl than race or class. How many people in New Zealand or Pakistan are familiar with American football? Would they be likely to understand as easily as many Americans an article discussing the details of the Superbowl?
As we have seen, readability formulas standardly conflate intellectual level and the ability to read “difficult” texts. They assume that as intellectual ability rises readers can read increasingly difficult texts. What our study indicates is that this standardly held assumption is inconsistent with the facts.

It is clear that intellectual ability and education cannot account for much of the divergence between readers’ contextual background information and the contextual information required to understand a text. Since the readability of a text for the reader is to a significant extent related to the degree to which the reader has appropriate contextual background knowledge, we cannot make a direct link between readability and intellectual ability or achievement. This kind of direct link is precisely what readability formulas presuppose when they assign grade levels to texts.

This is not to deny that students should be expected to have different sorts of knowledge at different ages and different educational levels. We are not in any way arguing against that notion. Nor for that matter are we denying that the knowledge that students are expected to master at higher grade levels may make some texts easier to read for more advanced students. What we are proposing is that the standard knowledge learned in school is not the only kind that affects readability, and may not in many cases be the most important contextual knowledge for determining how readable a text is for a particular reader. Is the knowledge of the specifics of eighteenth-century French society related to a particular grade level? For some schools and some programs, it may be, but certainly not for all schools, for example, in the United States. Nevertheless, it is information that can make the beginning of Dickens’s A Tale of Two Cities much more readable, regardless of the reading level of the reader. Is knowledge of electronic technology related to a level of intellectual achievement? Again, there is no necessary relation. However, it is important contextual information if one is reading an instruction manual . . . (see the discussion of Example (40) in the third chapter). Finally, is knowledge of the specifics of American football required for a specific grade level? The answer is clearly no,
but there are certainly articles in The New York Times on football which are effectively unreadable without this knowledge.

Clearly, the grade levels that can be assigned to texts using readability formulas are not an adequate indication of which texts are likely to be readable for particular readers. A comprehensive theory of readability, therefore, cannot fruitfully begin with the attempt to determine which texts are appropriate for given readers by matching texts with the reading levels of readers. Instead, a robust theory of readability should account for the kinds of background knowledge readers need to help them understand different texts. Readability theory needs to examine the kinds of gaps that exist between the non-textual information that a text requires and the non-textual information that a reader actually brings to a text. Understanding the nature of these gaps may help us to account for varying degrees of difficulty that texts pose for particular readers, as well as for the ways in which some texts may fail to communicate to individual readers or to sets of readers.

**Text and context 2: the linguistic code**

Let us now turn to how the structural properties of the text itself can pose obstacles to both fluency and comprehension. Here as well, we do not find any evidence to support the view that underlies most readability formulas that there is a clear progression from easy to difficult texts. Syntax is a case in point. Despite the claims of many readability formulas, it is not at all clear that simple syntactic structures are easier to understand than more complex ones. In fact, as we have seen in Chapter 3, in many cases simple sentences with no explicit connections between them can be more difficult to understand than more complex sentences in which the relationships are more explicitly stated. In addition, contextual information can make complex sentences considerably easier to read even for younger readers, a point which we will return to below.

What we do find is that certain kinds of syntactic structures seem to pose challenges to readers. In general these problems relate to difficulty linking one syntactic segment to another. The limiting case of near incomprehensibility is self-embedded structures such as (2):
Many sentences such as this one are almost impossible to understand. As we noted in the third chapter, the problem seems to be related to difficulty linking the verbs to the preceding nouns. While we might have little difficulty linking the first instance of the verb left to men, by the time we get to the second verb, watched, we are not sure what noun phrase it links to—and we do no better with the second instance of left.

While the problem of linking syntactic segments is most pronounced in self-embedded structures, similar, if less acute, linking issues occur in other syntactic structures. Psycholinguists have found that it is more difficult for people to process certain kinds of left-branching structures in which the relative pronoun functions as the object of the verb, as for example in (3):

(3) The thief that the policeman arrested was known to carry a knife. This processing difficulty seems to occur across a diverse array of languages, including English, French, German, and Japanese. In (3), the relative pronoun that refers to the thief, the object of the verb arrested. The reader must link the thief across intervening material to the verb arrested. In contrast, the thief in (4) is immediately adjacent to the verb, arrested, with which it is linked. (4) The policeman that arrested the thief was known to carry a knife. In (4), the relative pronoun that refers to the policeman, the subject of the verb arrested. The psycholinguistic evidence shows that sentences such as (4) are easier to process and comprehend than sentences such as (3), presumably because the linking is easier without intervening material.

Problems associated with linking discontinuous elements also turn up in cases of extraposition—that is, sentences in which part of a syntactic constituent is separated from the rest of the constituent. So, for example, in (5), the relative clause is adjacent to the noun phrase it modifies, while in (6), the relative clause has been moved, or extrapolated. (5) A woman who was carrying a boa constrictor arrived from France. (6) A woman arrived from France who was carrying a boa constrictor. Extraposed structures such as (6), in
which the relative clause, who was carrying a boa constrictor, must be linked across intervening material with the subject of the relative clause, a woman, are more difficult to comprehend and process than sentences such as (5), in which the relative clause is adjacent to its subject.

We have noted that the challenges to linking are not limited to the three types of examples we discussed that have been studied by linguists and psycholinguists. In Chapter 3, we also provided various examples of different kinds of discontinuous elements in naturally occurring texts in literary texts by Marcel Proust and Henry James, as well as in newspaper and magazine articles.

We looked at the problem of linking related sentential elements and discussed how the ability to identify those linkages within sentences can be affected not only by syntax but also by morphology. In at least some languages that use morphology to link related sentential segments, in particular Hindi and Russian, intervening material can also slow down processing. This suggests that the readability difficulties caused by linking issues on the sentence level are not simply a matter of word order in languages relying on word order to encode grammatical relations.

In Chapter 3 we also noted that syntactic ambiguity can create linking problems, making it difficult to identify which segments are linked together, as for example in (7), where it is not clear whether it is Jack or the man who is wearing the glasses: (7) Jack saw the man with his glasses. We, in addition, saw that the temporary syntactic ambiguity of garden path sentences could cause processing difficulties. Garden path sentences such as (8) are sentences in which a there is a temporary ambiguity where one of the two possible interpretations is eventually closed off by the syntax:

(8) The horse raced past the barn died.
In none of the sentences that posed comprehension or processing difficulty did we find any evidence that sentence length by itself is a factor in readability, although length is the measure that readability formulas standardly use to rank the syntactic complexity of texts.
Sentence length is also not a factor in the challenges posed by intervening material.

For example, (3) is no longer than (4), but it is only in (3) that we can identify a linking problem in which intervening material makes it difficult to link two elements of the sentence.

In fact, the readability challenges caused by intervening material are not always a question of the quantity of such material. Structural configuration can clearly play a very important role. This can certainly be seen in self-embedded structures, such as (2), in which the intervening material can be as little as a single word.

In addition, as we have previously noted in this chapter, our study does not support the view that a hierarchy of syntactically complex texts can be established on the basis of sentence length, an assumption that underlies standard readability formulas. Nor does our study support the idea that even a more discerning identification of syntactic issues related to readability, such as those we have discussed, could lead to the development of a single scale of reading difficulty. There is no reason to think that counting the number of sentences in a text which have linking problems would lead to a useful scale of difficulty.

Indeed, even the most sophisticated identification of syntactic readability issues would not suffice because context can substantially affect the readability of syntactic configurations.

As we noted in Chapter 3, researchers (Chomsky 1969, 1972; Richgels 1986; Crain and Shankweiler 1988: 189; Ulijn and Strother 1990) have argued, based on experimental studies, that context can help children to understand syntactically complex sentences that they might otherwise have difficulty with.

The effects of syntactically ambiguous and garden path sentences can be mitigated by context as well. If before reading (7) we have just learned that Jack put on his glasses so he could see, then we are unlikely to find (7) ambiguous. Similarly, context can reduce or eliminate the garden path effect. Consider the following context for (8):
The jockey rode several horses. Some of them he rode around the track. The horses which were not raced on the track had a more difficult time. In fact, the horse raced past the barn died.

Again, a simple count of garden path structures leaves out the role of context in assisting readers. Syntactic difficulty of texts clearly cannot be assessed by counting up the number of these difficult syntactic structures. The contribution of context in understanding even very difficult syntactic structures makes it impossible to develop a simple scale of syntactic difficulty.

Measuring difficulties in texts is no less difficult on the level of textual organization. In Chapter 5 we saw that linking problems can occur not just on the sentence level but also on the organizational level of written discourse.

**Text and context 3: the organization of the text**

We saw how the ability to link elements within texts can be affected by the structural organization of the text. We saw that when concepts are introduced in one chapter and then not discussed again until several chapters later, it is difficult for readers to recall the original introduction of the concept. It may be tempting to say that material separating textual elements always makes it more difficult for readers to identify links.

However, once again, reducing the problem to the distance between elements omits significant contextual factors that can help to facilitate linking. The organizational structure of the text—which is the context for making the links—may play a significant role. As was pointed out in a study by Wolfe (2005), textual features were recalled better when they were more integral to the organization of the text.

To a considerable degree, readers bring an implicit knowledge of organization to texts, and in many cases this is what allows them to draw connections between the components of a text. Genre conventions, scripts, and frames are all contextual background information that can help a reader develop a coherent conceptual model that links together the elements of a text. When readers lack knowledge of the genre within which a text is written, they fail to
identify the relationships between the parts of the text. In looking at A Modest Proposal, for example, we saw that readers unfamiliar with the satiric ironical genre that Swift used mistakenly thought that the arguments presented in the proposal were intended to be rationally linked to the conclusion that Irish babies should be served as food.

As we saw with respect to the readability challenges posed by certain types of syntactic structures, contextual background information plays a significant contribution to the ability of readers to make sense of written discourse. In the same way that contextual background information can mitigate, for example, syntactic complexity and ambiguity, knowledge of contextual background information can structure the way readers make connections between textual elements to form a coherent conceptual model of a text.

Once again it is not simply the formal textual characteristics that affect readability, but an interplay between these textual properties and the background contextual knowledge that readers bring to texts.

As we saw with respect to problematic syntactic structures, we cannot effectively account for the relative difficulty of texts by counting up the textual properties that may be problematic for readers and ranking texts along a scale from easy to difficult.38

**ANOTHER IMPORTANT RECENT STUDY ON TOPIC FAMILIARITY**

The authors of the above excerpt, Bailin and Grafstein, refer, like other recent investigators, to unstated and hence unmeasured “background knowledge” as a key to the readability of a text. There is now a study that anyone interested in fostering literacy among fellow nationals will wish to know about. It appeared in the *Reading Research Quarterly* of Fall 2022. It is as decisive as it is new. It strongly supports the already-described Kim study, which showed the experimental group of shared-knowledge students gaining more ground than the control group because they could gain new knowledge analogous with their shared knowledge better than the control group could.
This new study decisively reinforces that finding because it is a bi-directional study. Bi-directional in this case means there’s little way out for dissent! The old saying goes “All horses are animals, but not all animals are horses.” But, in this case, it was found that among elementary students all good readers on a topic are knowledgeable, and that all knowledgeable elementary students are good readers. That leaves little room for alternative theories about the connection. Here’s the abstract of the study:

ABSTRACT: “The present study tested the postulation that “knowledge begets reading, which begets knowledge.” Using Random Intercepts Cross-Lagged Panel Models (RI-CLPM), we analyzed a U.S. nationally representative data set to examine the directionality and magnitude of the longitudinal relation between domain knowledge (operationalized as science domain knowledge) and reading throughout the elementary years (from kindergarten to fifth grade), while accounting for important covariates, such as working memory, cognitive flexibility, English language proficiency, basic literacy skills, and demographic information. Moreover, we conducted multi-group RI-CLPM analyses to examine whether language status (being bilingual or monolingual) moderates the longitudinal relation between domain knowledge and reading. The results showed that the relation between domain knowledge and reading is bidirectional and positive throughout the elementary years, providing empirical evidence that domain knowledge and reading mutually enhance each other. In addition, language status did not moderate the relation between domain knowledge and reading, suggesting that the directionality and magnitude of the relation were similar between bilingual and monolingual students. Taken together, the results have important implications for integrating content knowledge and English language arts core instruction in elementary grades.”

As Bailin and Grafstein point out in their book, there is growing research showing that specific subject matter familiarity is a key element in verbal comprehension, spoken or written. Either of the following two phrases punched into a search engine will turn up a lot of research confirming the key importance of subject matter knowledge in verbal comprehension, the phrases: “domain knowledge,” and “topic familiarity.” Considering the importance and universality of the findings about topic familiarity, we
should by now have stressed that finding and done something about it.

It’s time to abandon “readability” and start talking about “domain knowledge” and “topic familiarity.” “Topic Familiarity” has become especially popular in second-language research. Of course! Topic knowledge helps the reader of a new language to make a correct guess about what the foreign word means in that context. But topic familiarity also performs the very same function in first-language reading. It helps us quickly to disambiguate the word, and it helps us to learn new words.

Hence, a person’s reading level can be much higher with a familiar topic than with an unfamiliar one. And that simple fact undercuts the notion that a person or a text has a settled reading level. The ability to draw correct implications from a text will vary with domain knowledge and topic familiarity. In short, the recent work on reading and domain knowledge disconfirms the notion that a person can reach a general reading level simply by mastering texts at that level. It depends on the topic. What does raise reading scores is this: greater topic familiarity with subjects that other people in your speech community are also familiar with. Shared, unstated topic knowledge is the key to interpersonal communication by language, oral or written.

Therefore, the older classroom with the teacher at the front would seem to be a more effective method of literacy instruction than bins of free-choice booklets on diverse subjects. And in the past, that approach did, in fact, induce higher reading scores in both France and the United States. (This simple point about the efficiency of student progress through topic familiarity by the whole class is highly relevant in making up for lost time in the Covid crisis.)

Everyone acknowledges the need for shared spelling and grammar and shared speech sounds. We need to acknowledge a comparable need for shared background knowledge. These shared elements of speech and writing are necessary to effective communication. They do not exclude fierce disagreement or firmly independent thought.

The individualism of student-centered instruction and its advocacy of individual choice of readings has been a well-meant but mistaken idea, rooted in a semi-religious faith in individual natural development. But, within the language domain, mutuality is the necessary and natural
approach. Individuality is expressed by manipulating mutually shared conventions, not by ignoring or abandoning them. Shared Knowledge strikes again!
Chapter 14

Time Marches On: Fostering Our National Renewal

This chapter’s title “Time Marches On” is ironic but hopeful. It’s the motto of a popular American newsreel and radio broadcast of the 1930s and 40s called The March of Time. It was shown as a movie newsreel and was broadcast as a radio program by Time, an immensely successful weekly news magazine. The magazine and its guiding ideas reflected the optimistic views held by most Americans in that era. We were optimistic about the nation’s economic growth and its successful contributions to World War I. That optimism was reinforced later in the 40s by our decisive victory in World War II.

Time magazine had been started in 1923 by two brilliant young graduates from Yale, who had breathed in confidence in the American future from their courses in the Yale philosophy and history departments. That same confidence was current in our other universities. And some of those courses featured the father of American child-centered education, the philosopher John Dewey, as well as Dewey’s own favorite philosopher, Hegel, who supported his romantic optimistic view of the future.

Time magazine was a huge success, and so were the newsreels and radio broadcasts that it sponsored, one of which was The March of Time. The aging John Dewey (1859-1942) was featured in more than one March of Time newsreel. One of them was entitled “Education in the 1940s.” It was devoted to the new romantic child-centered, “progressive” education. It can be viewed on YouTube.42

In that newsreel, after happy classroom scenes and commentary by experts, the final word was given to Dewey. I have transcribed his brief comment.
The world is moving at a tremendous rate, no one knows where. We must prepare our children not for the world of the past, not for our world, but for their world.

Then the music swells, and the sonorous announcer pronounces the confident motto of the newsreel series: Time Marches On!

Yet Professor Dewey, you just did predict something about where the world was headed. You said that child-centered education would prepare them for that changing future world that you rightly said is unpredictable. That doesn't follow. But then, maybe it does, once we invoke an unspoken logic: “You and I may not know where the rapidly changing world is tending, but God knows. And God—through Nature—will guide the child’s instincts just as the romantic Wordsworth assured us:

Nature never did betray the heart that loved her.

That trust in Nature is still a theme in American life and American education. It is implicit in Dewey’s non sequitur.

In this final chapter I will briefly describe how that trust in nature has deluded us and caused our current second-rate educational outcomes. According to the current Program for International Student Assessment (PISA), the United States, the richest nation in the world, now has the twenty-fifth best elementary school system in the world.

That’s because Nature does betray the heart that loves Her. Nature is quite indifferent. She does not infuse the individual child with just the right instincts and impulses that will guide her optimal “development” into our society and our future era. Our 80-year educational experiment with Romantic faith is a failed experiment—as Professor Hayes graphically showed in his chart of our verbal scores.43
Time marched backward. She did not “march on.” This book has argued that if we manage to divest ourselves of a false romantic religion of nature, supported by a false set of technical claims (readability, critical thinking) we will move forward in elementary education.

(I write this on the day (June, 29, 2023) that our Supreme Court has ruled against affirmative action in college admissions for students of color. That makes all the more urgent the need to overcome disadvantage by optimal early schooling. Child-centered schooling emphatically is not and cannot be optimal, given the inherent necessity of shared background knowledge for gaining high literacy and advanced knowledge. Neither can incoherent, tokenistic, multicultural schooling be optimal, that fails to impart expertise in the national grapholect. To impart that expertise is the primary duty of a nation's schools in the modern era. It is the only way that fairness and the optimal use of a young person's talents can be achieved. As the chart showing the “French Elbow” makes clear, the quality of grades K-5 are life-determining grades for disadvantaged children.

The history of our recent decline in literacy went this way: Our elementary education used to be first-rate under the “common school,” and the guidance of ideas from Enlightenment philosophers like John Locke. But then our education was overtaken by Romanticism and the religion of Nature, which was a false religion that cannot be relied on.

That religion of nature was a product of the general European frame of mind that developed after the French Revolution. In the 19th Century, “romanticism” infused the United States in figures like Emerson, Thoreau, Walt Whitman and later John Dewey. In Europe, even before the French Revolution, revealed religion was under a cloud for thinkers of the Enlightenment because of the unforgiving murderous absolutism of sectarian theology in the Wars of Religion. One of those wars—the Thirty Years War (1618-1648)—had killed a third of the population of Germany. Our founders wisely insisted upon the separation of church and state. The French Revolution (key date: 1789) along with the American Revolution (Constitution ratified 1791) emboldened romantic thinkers to look not for pie in the sky, but to pie on earth; to reject “priestly dogma” and repression.

But the religious impulse in people doesn’t go away. A new earthly religion emerged in Europe and America not long after our Constitution
was ratified in January 1791. The new earthly religion celebrated Nature and natural instincts. Wordsworth’s *Lyrical Ballads* was published in 1798. William Blake, who had written pious poetry before the French Revolution, after the Revolution, wrote “The Garden of Love” in 1794:

I went to the Garden of Love,
And saw what I never had seen:
A Chapel was built in the midst,
Where I used to play on the green.

And the gates of this Chapel were shut,
And *Thou shalt not* writ over the door;
So I turn’d to the Garden of Love,
That so many sweet flowers bore.

And I saw it was filled with graves,
And tombstones where flowers should be:
And Priests in black gowns, were walking their rounds,
And binding with briars, my joys & desires.

Instead of being bound by ancient scripture or by inherent social obligations, In “My Heart Leaps Up,” Wordsworth said we should follow “natural piety,” by celebrating the untainted, holy instincts of the young child.

The Child is father of the Man;
And I could wish my days to be
Bound each to each by natural piety.

The child’s natural growth was to be trusted. The child was closer to the divine source than the grown up whose “meddling intellect” “dissected” things rather than instinctively unifying them.

One impulse from a vernal wood
May teach you more of man,
Of moral evil and of good,
Than all the sages can.
Sweet is the lore which Nature brings;
Our meddling intellect
Mis-shapes the beauteous forms of things:—
We murder to dissect.

Such sentiments of the secular religion of nature were not limited to England. Across the Channel in France, and especially in Germany, Wordsworth’s sort of sentiments got their professional philosophical expressions by two friends (Schelling and Hegel) who were studying and writing about theology at the University of Tübingen. Both were brilliant, and at first Schelling was the star, with his “Absolute,” which was the German equivalent of Wordsworth’s “Nature.” But Hegel later became the international superstar. His dense philosophical treatises earned him international fame and influence over people and publications—including John Dewey and Time Magazine with its March-of-Time newsreels.

Hegel’s influence over John Dewey was fateful for our schools. Hegel’s notion of a gradually evolving world spirit marching ever forward in time led to an American change of educational thought—from conceiving the aim of education as forming the child to be a happy, effective member of a particular nation—to education as a God-inspired evolution growing out of mankind’s evolving, inherently divine manifestation of Geist. Geist was the intellectual manifestation of Holy Nature. With such Divinely directed moral progress, the improvement of society could be taken for granted.

John Dewey’s philosophy has been well described by Richard Rorty: an attempt to combine Hegel with Darwin. That’s a lot to chew on, but it really is not all that complicated. It means that Dewey thought things are evolving positively in human history just as they were doing in Nature.

That quick outline of the Hegel/Dewey “progressive” doctrine conflicts with the educational principles of our early “common school” which built our nation. Our founders’ common school conceived the child as being born with a “blank slate” (John Locke’s term) without any inborn ideas from “nature,” a word that means “inborn.” That was Locke’s insistent view. It was fundamental to the theory of equality of worth, and the equality of citizenship, and the principle of giving everyone an equal chance.

Hegel took a different view. The Hegel book that made its mark on Dewey’s thinking was The Phenomenology of Spirit (1807). It proposed a
story of mental development as part of an inevitable theological cosmic progress. *The Phenomenology of Spirit* was less about children than about an unfolding of thought in history. In Hegel’s account of human history, one thing leads inexorably to another by a “necessity” that expresses itself in a “dialectic” of trial and error and a “Logik” that is both unstoppable and beneficent. That “phenomenology” explained the inherent stages. The Absolute unfolded itself in human history by a necessary process. Note that the book’s title implies that the phenomena that are unfolding are being governed by Geist/Spirit/God. That which other romantics called “Nature,” Hegel called Geist—the “necessary” spiritual dimension of Nature. Hegel once said: “Philosophy has no other object but God and so is essentially rational theology.”

Hegel’s book won over John Dewey. It attracted him because it went into much greater detail and greater philosophical sophistication than Wordsworth’s “holiness of the heart’s affections.” It made claims about human history that infected the best minds of early twentieth-century America. Hegel’s book encouraged Dewey to believe that “Time Marches On”—and is doing so inexorably—just like Darwin’s view of evolution. Human history and thought evolved. In Hegel, the march of history was a march of progress overseen by a “necessary” Providence.

Hegel’s claim appealed to Dewey and other Americans of the twentieth century because it was an optimistic theory of history and human progress which fit their optimistic view of our nation. Its credibility was reinforced by the moral, physical, and social advances that had in fact been accomplished in recent history.

But from our current perspective (given our educational regress) a key point to notice in that story is that the social progress of our American history was accomplished not by complacent romantics like Hegel and Dewey but by the Enlightenment philosophers and activists who preceded them. It was accomplished by those who demanded the abolition of slavery, the equality of women, and the liberation of all persons, races, and ethnicities.

Hegel’s and Dewey’s secular religion implied that the brave and dangerous writings of Locke and Hobbes and others came to pass by the Absolute taking an inevitable course. That underlying religious confidence
in natural progress was what made Dewey say in the *March of Time* episode that child-centered education prepared the child for the unknown future. It was not unknown to the romantic Hegelian Absolute.

But the *Logik* of Hegel which made progress inevitable in his evolutionary “phenomenology of spirit” *did not itself prove helpful to progress*, and neither did Dewey’s theory. A confidence in “progressive” child-centered education is a *too-complacent* point of view. And that is its inherent moral and practical weakness. For progress was not accomplished by complacent Romanticism of the March of Time style, where Dewey spoke confidently of the children’s future world. It was accomplished by the “meddling intellect” of Enlightenment figures like Locke and Hamilton and Jefferson and later—Lincoln. They made America flourish under Enlightenment, activist ideas. They said: “The price of liberty is eternal vigilance,” not eternal complacency. It is *not* the “wise passiveness” of Wordsworth.

Nor less I deem that there are Powers
Which of themselves our minds impress;
That we can feed this mind of ours
In a wise passiveness.

Dewey believed with Hegel and Wordsworth that human history—especially in the United States—was inevitably marching forward.\(^{36}\) *Child-centered education has thus been based on a religious doctrine whose historical source was the romantic movement of the nineteenth century.* It is inherently antithetical to our founding ideas, which, though they came earlier, are sounder and more advanced than complacent romanticism. In *education*, history marched backward with the romantics—backward from the empirical, rational, patriotic version of the social contract, and the political need for loyalty and social unity.

Child-centered Hegelian confidence has led to unproductive complacency, even as our education, patriotism, and unity have declined. That is perhaps the most dangerous consequence of the Hegel-Darwin-Dewey tradition. It can lead to a sense of disdainful moral superiority over one’s predecessors. That, in turn, can lead to a sense of generational superiority, resentment, and a decline in patriotism.
Under child-centered education patriotism has become unfashionable. Nothing can be more dangerous in a democracy than a steep decline in patriotism. Patriotism is a social sentiment, a willingness to sacrifice personal benefit for the collectivity of people who make up the nation. Such a collectivist sentiment clashes with the individualistic flavor of romantic child-centered education. The romantic cult of ethnicity and identity has encouraged a focus on the feelings and the happiness, and the “identity” of the individual—and on her “ethnic group” which she defines as an essential part of her identity. Our schools bear responsibility for perpetuating these individualistic developments, which become self-perpetuating as school graduates become teachers.

Patriotism—the emotional side of the “social contract” celebrated by Hamilton and Jefferson—needs to get fashionable again. That can happen if our schools begin to grasp Jill Lepore’s argument in her This America, that the nation-state is not going away in favor of some vague Hegelian march towards globalism. Educators need to grasp that America does not owe each child a special indulgence for her “nature.” The Enlightenment social contract is a two-way obligation. John F. Kennedy said memorably: “Ask not what your country can do for you; Ask what you can do for your country. “We are all Americans, and we need to get hold of ourselves and perform our social duties.

Our state politicians need to get hold of themselves. They have a constitutional obligation to educate the children of their state. They need to start identifying themselves as ethnic Americans as well as ethnic Democrats and ethnic Republicans. As legislators, they need to mandate enough grade-by-grade topic commonality to enable the Kim effect to take place. They need to strive to make our nation tops in literacy, not number twenty-five.

That can only be done by a well-thought-out, enabling curriculum that results in shared, grapholectic knowledge. If artificial intelligence (AI) has to gain the silently shared background knowledge well enough to master the interpretation of human speech, so must a young American child. If our unity and our verbal curve have gone down through wrong ideas, they can be brought back up by right ones. What went down under an overconfident assumption of progress can come back up under a more accurate estimate of educational and social realities. We can flip the recent chart:
Certainly, that cannot be done overnight. Yet it can be done pretty fast by individual states aiming to become happier and better places. Their success will then encourage citizens of other states to demand educational improvement.

In his blank-slate conception of the child’s mind, John Locke had rightly attacked any predestination theology of the kind that is implicit in child-centered education. Back to Locke! The romantic faith in an ongoing, unfolding historical progress, while vaguely true of science and technology (which also emanated from the Enlightenment) is not the same as automatic progress in social and educational theory.

As applied to human history and human morality, uncritical faith in progress has been regressive in its effects. Yeats described our current era (in his ironic “The Second Coming”) this way: “The best lack all conviction, and the worst are full of passionate intensity.” The assumption that time and nature are marching beneficently onward leads paradoxically to a complacent arrogance regarding one’s own virtue and superiority.

That current sentiment of being superior to a merely national allegiance is a highly unattractive consequence of child-centered education. Too many Americans think: “Since time marches on, we inheritors of all this progress, we Americans are also marching forward in mind and sentiment. Hence, we are intrinsically smarter and better than those who came before.”

But there is a more humane modern tradition that earlier generations of Americans consciously fostered by using terms like “Polish-American” or “Chinese-American.” It recognized two ethnicities at once. And in fact, our “first-generation” Americans often considered bi-ethnicity to be a
temporary condition. But it need not be. Some version of bi-ethnicity now exists all over the modern world. The modern nation is usually made up of citizens who carry more than one social identity. In any case, bi-culturalism, in which one culture is the shared knowledge of the national grapholect, is essential to social health and national cohesion in the modern world.

Bi-ethnicity, the ethnicity of the home plus the ethnicity of the grapholect is (like literacy itself) an inherent condition of modernity. Modernity, as historians like Ernest Gellner and Jill Lepore have shown, is congruent with nationality. Nations with their armies and navies and their grapholects, based on shared background knowledge, have proved to be the most durable and potentially fair form of human social organization.

What makes a nation effective, strong, and fair is patriotism—devotion to one’s society as a whole and one’s willingness to sacrifice for the good of the whole. History has not been kind to multi-lingual empires. But nations can work technically and emotionally. And while that continues, patriotism and high literacy continue to be ideals worth advancing and teaching.

The American form of the democratic nation has proved to be a highly successful form of the nation-state—so long as it stops tearing itself apart with romantic notions of the child and her innate ideas and her innate identities. That has been a nation-weakening, democracy-weakening mistake. The mistake can be corrected by adopting a sounder form of schooling that embraces and enables everybody by means of a common national grapholect.

It makes high mastery of the national grapholect the possession of everyone – but at the same time encourages any home ethnicity anybody chooses to preserve. Bi-ethnicity unified by shared nationality and patriotism are as up-to-date today as they were at the dawn of literate modernity.

We will be better able to deal with the challenges of AI and “post-modernism” if we should stick with the political conceptions that created modern democracies. The Romantics were wonderful poets but deeply wrong educational theorists. Just because Romanticism followed the Enlightenment in time doesn’t mean that its passive nature-religion is an advance. Ethnicities are made not born. So rightly said John Locke and our founders.
After that notion got clouded by the post-enlightenment religion of nature, with Hegel being its high priest, our literacy scores gradually went downhill. Will American pragmatism bring them back up? If it does, we will be the better for it.

So concludes my argument.

In an appendix, I reproduce a long excerpt from the Core Knowledge curricular Sequence to illustrate one successful approach to the teaching of shared grapholectic knowledge.

It has produced smart, literate, and patriotic citizens—including these children in the South Bronx who were born indigent and of diverse cultures and races. Now they are firmly bi-ethnic—holding up their New-York-City-wide debating trophy! They are some of the best middle-school debaters in the City of New York. The excerpt from the curriculum in the Appendix will illustrate the kind of instruction in shared background knowledge that enabled this picture from the South Bronx. And this with renewed thanks to Jeff Litt who made this scene possible.
Appendix

One Example of Educational Success—Early Grades from the Core Knowledge Sequence

GRADES K–2

The pages that follow are the K–2 materials from the Core Knowledge Sequence. It’s a graphically well-designed publication that has been developed over several years. The full sequence is available for download gratis from the website of the Core Knowledge Foundation. The material reproduced below, from kindergarten through Grade 2, will give the reader an insight into the contrast that Cathy Kinter and Michele Hudak drew in Chapter 4 between the spare incoherence of what many of our public elementary schools present to their students and the content-rich curriculum offered by several thousand Core Knowledge schools in the United States. The Core Knowledge curriculum is similar to curricula in the highest-performing nations in the Program for International Student Assessment (PISA), where the United States ranks number twenty-five.

It’s the curriculum that makes the difference! Shared background knowledge (SBK) determines reading comprehension. Gaining it has enabled poor children from the South Bronx to outperform advantaged children from Manhattan, as described in Chapter 8.

The material below is compacted typographically, mixing topics with comments to the teacher. It’s presented to give the reader a sense of the kind of knowledge that so excites our Core Knowledge pupils, and that destines them to attend good high schools and colleges, and become good, high-earning citizens. Any similar curriculum based on similar principles would work as well. If some states got together and proposed a similarly effective and more official curriculum that had a chance to go national, the
United States would become one of the top nations in PISA, and we’d be more unified and politically intelligent!

This text was formed by downloading the PDF file of the Sequence, turning that into a Microsoft Word document, then removing all the line breaks and attempting to break the massive text into meaningful segments.

The result will help the reader grasp why children are so excited when they master this material. Teachers love it too, just as Cathy Kinter and Michele Hudak attested in Chapter 4. Besides the full PDF version, there’s also a separate Pre-K curriculum guide. It’s also available gratis from the Core Knowledge Foundation website, along with much more.

To save space, the excerpted material doesn’t go beyond Grade 2.
ENGLISH LANGUAGE ARTS

The Common Core State Standards for English Language Arts emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the Core Knowledge Sequence into the language arts block. Note that in the Sequence, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

Note: The objectives listed in note query below of Language Arts below are consistent with the Core Knowledge Language Arts program and embed all of the skills and concepts within the Common Core State Standards for English Language Arts.

LISTENING AND SPEAKING

Teachers: Shortly after a baby is born, an amazingly complex, interactive communication process begins between the infant and others in his/her environment. While it may seem like an obvious statement, it is nonetheless worth making the point that listening and speaking are the primary means of communication throughout the early years of a young child's development. It should be equally obvious that reading and writing competencies are predicated on competencies in listening and speaking. When a child enters kindergarten, however, traditional language arts instruction has typically accorded little, if any, attention to the ongoing development of children's listening and speaking ability. We have acted as if listening and speaking competencies are fully and firmly established and can be left behind as reading and writing instruction begins. Nothing could be further from the truth. This omission in language arts instruction has been a serious oversight. We must remedy this oversight, deliberately elaborating and extending listening and speaking skills, while we simultaneously begin to introduce reading, and then writing. Children who are fortunate enough to participate in language arts instruction that recognizes the importance of continuing to build listening and speaking
competency while also beginning reading and writing instruction will, in the end, be far more literate adults.

A. Classoom Discussion
- Participate in age-appropriate activities involving listening and speaking.
- Speak clearly with volume appropriate to the setting.
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc.
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines.
- Carry on and participate in a conversation over four to five turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age.
- Identify and express physical sensations, mental states, and emotions of self and others.
- Understand and use language to express spatial and temporal relationships (up, down, first, last, before, after, etc.).
- Understand and use narrative language to describe people, places, things, locations, events, actions.
- Understand and use common sayings and phrases such as “Better safe than sorry” and “Look before you leap.”

B. Presentation of Ideas and Information
- Follow multistep, oral directions.
- Give simple directions.
- Provide simple explanations.
- Recite a nursery rhyme, poem, or song independently.

C. Comprehension and Discussion of Read-Alouds—All Texts

Teachers: Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This can be done through frequent reading aloud. Helping young children develop the ability to listen to and understand written texts when they are read aloud must be an integral part of any initiative designed to build literacy.
At the kindergarten level, students’ ability to understand what they hear far outpaces their ability to independently read and understand written text. By listening to stories or nonfiction selections read aloud, students can experience the complexities of written language without expending cognitive energy on decoding; they can likewise access deeper and more complex content knowledge than they are presently able to read independently.

Careful consideration should be given to the selection of books read aloud to ensure that the vocabulary and syntax presented is rich and complex. Leveled texts will not provide the rich language experience desired during read-alouds and should only be used as a starting point with students for whom English is a second language.

Grade-appropriate read-aloud selections for poetry and fiction are included in the Sequence. Nonfiction read-alouds should be selected on the basis of the history, science, music, and visual art topics identified for kindergartners in the Core Knowledge Sequence, with emphasis on history and science read-alouds. It is strongly recommended that daily read-alouds focus on a single topic over a sustained period of time—about two weeks—rather than intermingling read-alouds on a variety of subjects. Careful consideration should be given to the order in which nonfiction read-alouds are presented to ensure that knowledge about a topic builds in a progressive and coherent way.

Following any read-aloud, students should participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational texts, and poems.

**Grasping Specific Details and Key Ideas**

- Describe illustrations.
- Sequence four to six pictures illustrating events in a read-aloud.
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc.
• Retell key details.
• Ask questions to clarify information in a read-aloud.
• Use narrative language to describe people, places, things, locations, events, actions, a scene, or facts in a read-aloud.

Observing Craft and Structure
• Understand and use words and phrases heard in read-alouds.
• Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds.
• Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds.

Integrating Information and Evaluating Evidence
• Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud.
• Use pictures accompanying the read-aloud to check and support understanding of the read-aloud.
• Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions.
• Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships.
• Identify who is telling a story or providing information in a text.

D. Comprehension and Discussion of Read-Alouds—Fiction, Drama, and Poetry
• Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
• Change some story events and provide a different story ending.
• Create and tell an original story, using narrative language to describe characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
• Distinguish fantasy from realistic text in a story.
• Demonstrate understanding of literary language (e.g., author,
illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.

**E. Comprehension and Discussion of Read-Alouds—Nonfiction and Informational Texts**

**Teachers:** Select nonfiction read-aloud topics from the kindergarten history, science, music, and visual arts topics, with emphasis on history and science.

- Retell important facts and information from a nonfiction read-aloud.
- With assistance, categorize and organize facts and information within a given topic.
- With assistance, create and interpret timelines and lifelines related to read-alouds.
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events.

**Reading**

**A. Print Awareness**

- Demonstrate understanding that what is said can be written and that the writing system is a way of writing down sounds.
- Demonstrate understanding of directionality (left to right, return sweep, top to bottom, front to back).
- Identify the parts of books and the function of each part (front cover, back cover, title page, table of contents).
- Recognize that sentences in print are made up of separate words.
- Understand that words are separated by spaces.
- Distinguish letters, words, sentences, and stories.
- Demonstrate understanding of basic print conventions by tracking and following print word for word when listening to text read aloud.
- Demonstrate understanding that the sequence of letters in a written word represents the sequence of sounds in the spoken word.
- Recognize and name the twenty-six letters of the alphabet in both their uppercase and lowercase forms.
- Say the letters of the alphabet in order, either in song or recitation.
B. Phonological and Phonemic Awareness

- Identify environmental sounds, e.g., keys jingling, scissors cutting, clapping.
- Identify whether pairs of environmental sounds are the same or different.
- Count the number of environmental sounds heard, e.g., clapping, rhythm band instruments.
- Orally segment sentences into discrete words.
- Demonstrate understanding that words are made up of sequences of sounds.
- Demonstrate understanding that vowel sounds are produced with the mouth open and airflow unobstructed, whereas consonant sounds involve closing parts of the mouth and blocking the air flow.
- Given a pair of spoken words, select the one that is longer (i.e., contains more phonemes).
- In riddle games, supply words that begin with a target phoneme.
- Indicate whether a target phoneme is or is not present in the initial/medial/final position of a spoken word, e.g., hear /m/ at the beginning of *mat* and /g/ at the end of *bag*.
- Listen to one-syllable words and tell the beginning or ending sounds, e.g., given the word *dog*, identify initial /d/ or final /g/.
- Recognize the same phoneme in different spoken words, e.g., /b/ in *ball*, *bug*, and *big*.
- Identify whether pairs of phonemes are the same or different, including pairs that differ only in voicing, e.g., /b/ and /p/.
- Orally blend two or three sounds to form a word, e.g., given the sounds /k/…/a/… /t/, blend to make *cat*.
- Segment a spoken word into phonemes, e.g., given the word *bat*, produce the segments /b//a//t/.
- Given a spoken word, produce another word that rhymes, e.g., given the word *hit*, supply *bit* or *mitt*.
- Identify the number of syllables in a spoken word

C. Phonics: Decoding and Encoding

**Teachers:** Learning to read requires understanding and mastering the written English code through explicit and systematic phonics instruction. Research suggests that phonics instruction is most effective when specific
letter-sound relationships are taught and reinforced by having students both read and write the letter-sound correspondence being studied. Reading and writing—decoding and encoding—are complementary processes that ensure mastery of the written code.

- Demonstrate understanding that a systematic, predictable relationship exists between written letters (graphemes) and spoken sounds (phonemes).
- Blend individual phonemes to pronounce printed words.
- Understand that sometimes two or more printed letters stand for a single sound.
- Read and write any CVC word, e.g., sit or cat.
- Read and write one-syllable words containing common initial consonant clusters such as tr-, fl-, dr- and sp- and consonant digraphs such as ch-, sh-, th-, etc.
- Read and write words containing separated vowel graphemes, such as late, bite, note, cute.
- Read tricky spellings that can be sounded two ways, e.g., the letter s sounded /s/ as in cats and /z/ as in dogs.
- Read and write chains of one-syllable words in which one sound is added, substituted, or omitted, e.g., read at > cat > bat > bad > bid.
- Read at least fifteen words generally identified as very high frequency words.

**Consonant Sounds and Spellings Taught in Kindergarten**

/b/ spelled ‘b’ as in boy, ‘bb’, as in tubby
/d/ spelled ‘d’ as in dog, ‘dd’ as in madder
/f/ spelled ‘f’ as in fun, ‘ff’ as in stuff
/g/ spelled ‘g’ as in get, ‘gg’ as in egg
/h/ spelled ‘h’ as in him
/j/ spelled ‘j’ as in jump
/k/ spelled ‘c’ as in cat, ‘k’ as in kitten, ‘ck’ as in sick, ‘cc’ as in moccasin
/l/ spelled ‘l’ as in lip, ‘ll’ as in sell
/m/ spelled ‘m’ as in mad, ‘mm’ as in hammer
/n/ spelled ‘n’ as in net, ‘nn’ as in funny
/p/ spelled ‘p’ as in pet, ‘pp’ as in happy
/r/ spelled ‘r’ as in red, ‘rr’ as in earring
/s/ spelled ‘s’ as in sit, ‘ss’ as in dress
/t/ spelled ‘t’ as in top, ‘tt’ as in butter
/v/ spelled ‘v’ as in vet /w/ spelled ‘w’ as in wet
/x/ spelled ‘x’ as in tax
/y/ spelled ‘y’ as in yes
/z/ spelled ‘z’ as in zip, ‘zz’ as in buzz, ‘s’ as in dogs
/ch/ spelled ‘ch’ as in chop
/sh/ spelled ‘sh’ as in ship
/th/ spelled ‘th’ as in thin
/th/ spelled ‘th’ as in then
/qu/ spelled ‘qu’ as in quick
/ng/ spelled ‘ng’ as in sing, ‘n’ as in pink

Vowel Sounds and Spellings Taught in Kindergarten
/a/ spelled ‘a’ as in cat
/e/ spelled ‘e’ as in get
/i/ spelled ‘i’ as in hit
/o/ spelled ‘o’ as in hot
/u/ spelled ‘u’ as in but
/ae/ spelled ‘a_e’ as in cake
/ee/ spelled ‘ee’ as in bee
/ie/ spelled ‘i_e’ as in bike
/oe/ spelled ‘o_e’ as in note
/ue/ spelled ‘u_e’ as in cute
/er/ spelled ‘er’ as in her
/ar/ spelled ‘ar’ as in car
/or/ spelled ‘or’ as in for

D. Oral Reading and Fluency
- Read decodable stories that incorporate the specific code knowledge that has been taught.
- Use phonics skills in conjunction with context to confirm or self-correct word recognition and understanding, rereading as necessary.
- Demonstrate understanding of and use commas and end punctuation while reading orally.
- Read aloud, alone, or with a partner at least 15 minutes each day.
E. Reading Comprehension—All Texts

Teachers: It is important to recognize that kindergartners are taught only some of the many letter-sound correspondences a reader needs to know to read a wide range of printed material. As a result, many kindergartners will be able to read only the simplest written text independently. At this grade level, mental energy will be directed primarily to the act of reading, i.e., decoding. A focus on the mechanics of decoding is appropriate and desirable at this early stage in the reading process. In kindergarten, attention to reading comprehension should be directed to ensuring a fundamental understanding of what has been read. At this grade level, it will generally be more effective and efficient to devote time to higher-level thinking and comprehension skills at the listening and speaking level in response to written texts that are read aloud.

- Demonstrate understanding of simple decodable texts after reading independently.

**Grasping Specific Details and Key Ideas**

- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently.
- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
- Use narrative language to describe people, places, things, locations, events, actions, a scene, or facts from a text that has been read independently.

**Observing Craft and Structure**

- Understand and use words and phrases from a text that has been read independently.

**Integrating Information and Evaluating Evidence**

- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read.
- Use pictures accompanying the written text to check and support understanding.
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions.
- Identify who is telling a story or providing information in a text.
Writing

Teachers: It is important to recognize that of all the communication skills—listening, speaking, reading, and writing—writing is the most demanding and challenging, especially for kindergartners who are just learning not only the code, but the fine motor skills and letter strokes necessary for putting something down on paper. Kindergartners can, however, express themselves in writing by drawing pictures and, as they begin to learn some of the code, copying or writing words, phrases, and sentences.

In addition, students can also participate in shared writing exercises modeled and scaffolded by an adult. The focus in shared writing should be on encouraging the students to verbally express themselves coherently and in complete sentences, as the teacher serves as a scribe.

Writing to Reflect Audience, Purpose, and Task

- Draw pictures to represent a text that has been heard or read independently.
- Draw pictures to represent a preference or opinion.
- Write narratives, informative and explanatory texts, and offer an opinion through shared writing exercises.
- With assistance, add details to writing.
- Create a title or caption to accompany a picture and/or shared writing.

Language Conventions

- Form letters, words, phrases, and sentences to communicate thoughts and ideas.
- Apply basic spelling conventions.
- Use basic capitalization and punctuation in sentences to convey meaning.

A. Handwriting and Spelling

- Hold a pencil with a pincer grasp and make marks on paper.
- Trace, copy, and print from memory the twenty-six letters of the alphabet accurately in both their uppercase and lowercase forms.
- Write own name.
- Write from left to right, leaving spaces between words, and top to bottom using return sweep.
• Begin to write phonemically plausible spellings for words that cannot be spelled correctly with current code knowledge, e.g., write *bote* for *boat*, *sum* for *some*, *hunee* for *honey*.
• Write words, phrases, and sentences from dictation, applying phonics knowledge.

**B. Parts of Speech and Sentence Structure**
• Use and understand question words, i.e., *what*, *where*, *when*, *who*, *how*.
• Form regular plural nouns by adding *s* or *es*, i.e., *dog*, *dogs*, *wish*, *wishes*.
• Demonstrate understanding of frequently occurring prepositions, i.e., *to/from*, *in/out*, *on/off*.
• Produce and expand complete sentences orally and in shared writing exercises.

**C. Capitalization and Punctuation**
• Capitalize the first word in a sentence; the pronoun *I*.
• Identify and use end punctuation, including periods, question marks, and exclamation points.

**POETRY**

*Teachers:* Students should be introduced to a varied selection of poetry with strong rhyme and rhythm. Students should hear these rhymes read aloud, and should say some of them aloud. Some rhymes may also be sung to familiar melodies. The poems listed here represent some of the most popular and widely anthologized titles; students may certainly be introduced to more Mother Goose rhymes beyond the selection below. Although students are not expected to memorize the following rhymes, they will delight in knowing their favorites by heart, and will experience a sense of achievement and satisfaction in being able to recite some of the rhymes.

**A. Mother Goose and Other Traditional Poems**

“A Diller, a Dollar”
“Baa, Baa, Black Sheep”
“Diddle, Diddle, Dumpling”
“Early to Bed”
“Georgie Porgie”
“Hey Diddle Diddle”
“Hickory, Dickory, Dock”
“Hot Cross Buns”
“Humpty Dumpty”
“It’s Raining, It’s Pouring”
“Jack and Jill”
“Jack Be Nimble”
“Jack Sprat”
“Ladybug, Ladybug”
“Little Bo Peep”
“Little Boy Blue”
“Little Jack Horner”
“Little Miss Muffet”
“London Bridge Is Falling Down”
“Mary, Mary, Quite Contrary”
“Old King Cole”
“Old Mother Hubbard”
“One, Two, Buckle My Shoe”
“Pat-a-Cake”
“Rain, Rain, Go Away”
“Ride a Cock-Horse”
“Ring Around the Rosey”
“Rock-a-bye, Baby”
“Roses Are Red”
“See-Saw, Margery Daw”
“Simple Simon”
“Sing a Song of Sixpence”
“Star Light, Star Bright”
“There Was a Little Girl”
“There Was an Old Woman Who Lived in a Shoe”
“This Little Pig Went to Market”
“Three Blind Mice”

B. **Other Poems, Old and New**

“April Rain Song” (Langston Hughes)
“Happy Thought” (Robert Louis Stevenson)
“I Do Not Mind You, Winter Wind” (Jack Prelutsky)
“Mary Had a Little Lamb” (Sara Josepha Hale)
“The More It Snows” (A. A. Milne)
“My Nose” (Dorothy Aldis)  
“Rain” (Robert Louis Stevenson)  
“Three Little Kittens” (Eliza Lee Follen)  
“Time to Rise” (Robert Louis Stevenson)  
“Tommy” (Gwendolyn Brooks)  
“Twinkle Twinkle Little Star” (Jane Taylor)

**Fiction**

**Teachers:** While the following works make up a strong core of literature, the content of language arts includes not only stories, fables, and poems but also the well-practiced, operational knowledge of how written symbols represent sounds, and how those sounds and symbols convey meaning. Thus, the stories specified below are meant to complement, not replace, materials designed to help students practice decoding and encoding skills (see above, II. Reading and III. Writing).

The following works constitute a core of stories for this grade. In kindergarten, these stories are meant to be read-aloud selections. Expose students to many more stories, including classic picture books and read-aloud books. (In schools, teachers across grade levels should communicate their choices in order to avoid undue repetition.) Students should also be exposed to nonfiction prose: biographies, books on science and history, books on art and music, etc. And, students should be given opportunities to tell and write their own stories.

**A. Stories**

“*The Bremen Town Musicians*” (Brothers Grimm)  
“*Chicken Little*” (also known as “Henny-Penny”)  
“*Cinderella*” (Charles Perrault)  
“*Goldilocks and the Three Bears*”  
“*How Many Spots Does a Leopard Have?*” (African folktale)  
“*King Midas and the Golden Touch*”  
“*The Legend of Jumping Mouse*” (Native American: Northern Plains legend)  
“*Little Red Hen*”  
“*Little Red Riding Hood*”  
“*Momotaro: Peach Boy*” (Japanese folktale)  
“*Snow White and the Seven Dwarfs*”  
“*The Three Billy Goats Gruff*”
“The Three Little Pigs”
“A Tug of War” (African folktale)
“The Ugly Duckling” (Hans Christian Andersen)
“The Velveteen Rabbit” (Margery Williams)
selections from “Winnie-the-Pooh” (A. A. Milne)
“The Wolf and the Kids” (Brothers Grimm)

B. Aesop’s Fables
“The Lion and the Mouse”
“The Grasshopper and the Ants”
“The Dog and His Shadow”
“The Hare and the Tortoise”

C. American Folk Heroes and Tall Tales
Johnny Appleseed
Casey Jones

D. Literary Terms
Teachers: As students become familiar with stories, discuss the following:
- author
- illustrator

Sayings and Phrases
Teachers: Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many students, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with students from home cultures that differ from the standard culture of literate American English.

A dog is man’s best friend.
April showers bring May flowers.
Better safe than sorry
Do unto others as you would have them do unto you.
The early bird gets the worm.
Great oaks from little acorns grow.
Look before you leap.
A place for everything and everything in its place
Practice makes perfect.
[It’s] raining cats and dogs.
Where there’s a will there’s a way.

**HISTORY AND GEOGRAPHY**

Teachers: In kindergarten, students often study aspects of the world around them: the family, the school, the community, etc. The following guidelines are meant to broaden and complement that focus. The goal of studying selected topics in world history in kindergarten is to foster curiosity and the beginnings of understanding about the larger world outside the student’s locality, and about varied civilizations and ways of life. This can be done through a variety of means: story, drama, art, music, discussion, and more.

The study of geography embraces many topics throughout the Core Knowledge Sequence, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

It is important that students learn about the people who shaped our world, as well as those who continue to do so. Thus, it is recommended that students listen to a variety of biographies. Engaging students in read-alouds about the individuals listed in the Sequence, and others, enables them to draw from a broader perspective.

**WORLD HISTORY AND GEOGRAPHY**

**Spatial Sense (Working with Maps, Globes, and Other Geographic Tools)**

Teachers: Foster students’ geographical awareness through regular work with maps and globes. Have students regularly locate themselves on maps and globes in relation to places they are studying. Students should make and use a simple map of a locality (such as classroom, home, school grounds) or a map for a treasure hunt.

- Maps and globes: what they represent, how we use them
- Rivers, lakes, and mountains: what they are and how they are represented on maps and globes
- Locate the Atlantic and Pacific Oceans
- Locate the North and South Poles
Note: In later grades, students will continue to learn about all of the continents as well as specific countries and peoples.

**AN OVERVIEW OF THE SEVEN CONTINENTS**

**Teachers:** Help students gain a beginning geographic vocabulary and a basic sense of how we organize and talk about the world by giving names to some of the biggest pieces of land. Introduce students to the seven continents through a variety of methods and media (tracing, coloring, relief maps, etc.), and associate the continents with familiar wildlife, landmarks, peoples, cultures, etc., for example, penguins in Antarctica or the Eiffel Tower in Europe. Throughout the school year, reinforce names and locations of continents when potential connections arise in other disciplines, for example, connect Grimms’ fairy tales to Europe, the voyage of Pilgrims to Europe and North America, the story of “Momotaro: Peach Boy” to Asia [Japan], or the study of Native Americans to North America.

- Identify and locate the **seven continents** on a map and globe:
  - Asia
  - Europe
  - Africa
  - North America
  - South America
  - Antarctica
  - Australia

**AMERICAN HISTORY AND GEOGRAPHY**

**Teachers:** The study of American history begins in Grades K–2 with a brief overview of major events and figures, from the earliest days to recent times. A more in-depth, chronological study of American history begins again in Grade 3 and continues onward. The term “American” here generally, but not always, refers to the lands that became the United States. Other topics regarding North, Central, and South America may be found in the World History and Geography sections of this Sequence.

**Note:** No historical evidence exists to confirm Plymouth Rock as the Pilgrims’ stepping stone to the New World. In fact, it is believed that the Pilgrims first made landfall on the tip of Cape Cod in November 1620 before sailing to safer harbors in Plymouth the following month. William Bradford, and his fellow Mayflower passengers, made no written references
to setting foot on a rock as they disembarked to start their settlement on a new continent.

**Note:** Discussing slavery with younger students is a very challenging task. Slavery, which has existed for thousands of years in many cultures, is by definition an inhumane practice—people are reduced to property, to be bought and sold, and often treated with brutality and violence. Classroom discussion of slavery should acknowledge its cruelty while remaining mindful of the age of the students.

**Note:** Discuss with students “What does it mean to be free?”

**Geography**
- Name and locate the town, city, or community, as well as the state where you live.
- Locate North America, the continental United States, Alaska, and Hawaii.

**Native American Peoples, Past and Present.**

**Teachers:** As students progress through the grades of the Core Knowledge Sequence, they will learn about many different Native American peoples in many different regions (such as Pacific Northwest: Kwakiutl [Kwakwaka’wakw], Chinook; Plateau: Nez Perce; Great Basin: Shoshone, Ute; Southwest: Dine [Navajo], Hopi, Apache, Zuni; Plains: Blackfoot, Comanche, Crow, Kiowa, Dakota, Lakota [Sioux], Cheyenne, Arapaho; Eastern Woodlands: Huron, Iroquois, Mohican, Delaware [Lenni Lenape], Susquehanna, Massachusetts, Wampanoag, Powhatan; Southeast: Cherokee, Seminole). In kindergarten, study at least one specific group of Native Americans. You might explore a local or regional tribe or nation, and compare it with one far away.

- Become familiar with the people and ways of life of at least one Native American tribe or nation, including:
  > the landscape and environment they lived in
  > how they lived
  > what they wore and ate
  > the homes they lived in
  > their beliefs and stories
  > the current status of the tribe or nation
Early Grades from the Core Knowledge Sequence

Early Exploration and Settlement

Teachers: Columbus Day is an important holiday for many Americans, but in some states the holiday has been renamed Indigenous People’s Day in recognition of the harm that was caused to the indigenous peoples of the Americas by explorers, adventurers, and settlers from Europe. In fact, Columbus did enslave the Taino people and take them back to Europe with him. Although elements of Columbus’s story are dark, his voyages do mark a great change in the history of the world.

The Voyage of Columbus (Cristoforo Colombo) in 1492
- Queen Isabella and King Ferdinand of Spain
- The Niña, Pinta, and Santa Maria
- Columbus’s mistaken identification of “Indies” and “Indians”
- The idea of what was, for Europeans, a “New World”

The Pilgrims
- The Mayflower
- Plymouth Rock
- Thanksgiving Day celebration

July 4, Independence Day
- The “birthday” of our nation
- Democracy (rule of the people): Americans wanted to rule themselves instead of being ruled by a faraway king
- Some people were not free: slavery in early America

Presidents, Past and Present

Teachers: Introduce students to famous presidents, and discuss with them questions such as the following: What is the president? How does a person become president? Who are some of our most famous presidents, and what did they do that made them famous?
- George Washington
  > The “Father of Our Country”
  > Legend of George Washington and the cherry tree
- Thomas Jefferson, author of the Declaration of Independence
- Abraham Lincoln
  > Humble origins
  > “Honest Abe”
- Theodore Roosevelt
> National Park initiative

- Barack Obama
  > First Black American president
- Current US president

**Symbols and Figures**

- Recognize and become familiar with the significance of
  > the American flag
  > the Statue of Liberty
  > Mount Rushmore
  > the White House

**VISUAL ARTS**

**Teachers:** In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. The following guidelines specify a variety of artwork in different media and from various cultures in order to expose students to a wide range of art and artists. While the list is robust, it may require teachers to narrow the selection in order to adequately address the works and related skills within an academic year.

**Elements of Art**

**Teachers:** The generally recognized elements of art include line, shape, form, space, light, texture, and color. In kindergarten, introduce students to line and color. Engage students in recognizing and using different kinds of lines and colors, and point out lines and colors in nature. (You may also wish to observe shapes in art and nature—see Math: Geometry.)

**A. Color**

- Observe how colors can create different feelings and how certain colors can seem “warm” (red, orange, yellow) or “cool” (blue, green, purple).
- Observe the use of color in
  > Pieter Bruegel, *The Hunters in the Snow*
  > Helen Frankenthaler, *Blue Atmosphere*
  > Paul Gauguin, *Tahitian Landscape*
Early Grades from the Core Knowledge Sequence

B. Line
- Identify and use different lines: straight, zigzag, curved, wavy, thick, thin
- Observe different kinds of lines in
  > Katsushika Hokusai, Tuning the Samisen
  > Henri Matisse, Purple Robe and Anemones
  > Joan Miró, People and Dog in the Sun
  > Käthe Kollwitz, Sleeping Woman and Child (1929)
  > William H. Johnson, Li’L Sis (1944)
  > Horace Pippin, Family Supper (1946)

C. Artworks
Teachers: After students have been introduced to some elements of art and a range of artworks and artists, engage them in looking at pictures and talking about them. Ask the students about their first impressions—what they notice first, and what the picture makes them think of or feel. Go on to discuss the lines and colors, details not obvious at first, why they think the artist chose to depict things in a certain way, etc.

Sculptrure
- Recognize and discuss the following as sculptures:
  > Northwest American Indian totem pole
  > Alexander Calder’s Lobster Trap and Fish Tail
  > Sandy Skoglund, Gathering Paradise (1991)
- Look at and discuss
  > Pieter Bruegel, Children’s Games
  > Winslow Homer, Snap the Whip
  > Diego Rivera, The Mother’s Helper
  > Henry O. Tanner, The Banjo Lesson
  > Maria Izquierdo, My Nieces (1940)
  > Mark Tansey, Snowman, (2004)
D. Architecture

Teachers: These structures offer the opportunity for students to explore different architectural shapes and lines as well as begin to think how the design helps the building stand up.

- Explore different architectural shapes and lines in buildings, such as
  - the Hall of Supreme Harmony (1406)
  - the Eiffel Tower (1887)
  - the Sydney Opera House (1973)

Note: When studying the Hall of Supreme Harmony, draw students’ attention to the shape of a diagonal, like that of a pitched roof, as well as the horizontal line of beams resting on the vertical lines of columns. Discuss with students how the shape and design of these columns enable them to hold up the heavy materials above.

Note: When reviewing the Eiffel Tower point out how the structure becomes increasingly thin at the top.

Note: When looking at the Sydney Opera House, discuss the curvature of the roof profile and how this is a shape that copies similar shapes in nature.

MUSIC

Teachers: In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines. The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

Elements of Music

- Through participation, become familiar with some basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
- Recognize a steady beat; begin to play a steady beat.
- Recognize that some beats have accents (stress).
- Move responsively to music (marching, walking, hopping, swaying, etc.).
- Participate in call-and-response activities (e.g., “John the Rabbit”).
- Engage in improvisation activities (e.g., “All Around the Kitchen,” “Little Johnny Brown”).
• Participate in play party activities (e.g., “The Farmer in the Dell,” “The Paw-Paw Patch,” “Here We Go Round the Mulberry Bush,” “The Hokey Pokey”).
• Recognize short and long sounds.
• Discriminate between fast and slow.
• Discriminate between obvious differences in pitch: high and low.
• Discriminate between loud and soft.
• Recognize that some phrases are the same, some different.
• Sing unaccompanied, accompanied, and in unison.

**LISTENING AND UNDERSTANDING**

**Teachers:** To encourage listening skills and the beginnings of understanding, play various kinds of music often and repeatedly. In the kindergarten classroom, music can be played for enjoyment, to accompany activities, to inspire creative movement, etc. Expose children to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

• Recognize the following instruments by sight and sound:
  > guitar
  > piano
  > trumpet
  > flute
  > violin
  > drum

• Become familiar with the following works:
  > Edvard Grieg, “Morning Mood” and “In the Hall of the Mountain King” from *Peer Gynt*
  > Victor Herbert, “March of the Toys” from *Babes in Toyland*
  > Camille Saint-Saëns, *Carnival of the Animals*
  > Ella Fitzgerald, “A-Tisket, A-Tasket”

**Note:** Grieg’s “In the Hall of the Mountain King” is a good work to illustrate dynamics (loud and quiet), as well as tempo (slow and fast).

**SONGS**

**Teachers:** See also Language Arts, Mother Goose poems. A number of the poems may be sung to familiar melodies.

“The Bear Went Over the Mountain”
“Bingo”
“Go In and Out the Window”
“Go Tell Aunt Rhody”
“Here We Go Round the Mulberry Bush”
“If You’re Happy and You Know It”
“Jingle Bells”
“John Jacob Jingleheimer Schmidt”
“Kumbaya” (also “Kum Ba Ya”)
“London Bridge”
“Old MacDonald Had a Farm”
“Row, Row, Row Your Boat”
“This Old Man”
“Twinkle Twinkle Little Star”
“The Wheels on the Bus”
“A Ram Sam Sam”
“Fais Dodo”
“Pin Pon”
“This Little Light of Mine”
“Oh, John the Rabbit”

Teachers: You may wish to supplement the songs listed above with songs from the Core Knowledge Preschool Sequence, as follows:
“Are You Sleeping?”
“Do Your Ears Hang Low?”
“Did You Ever See a Lassie?”
“Eensy, Weensy Spider”
“Five Little Ducks That I Once Knew”
“Five Little Monkeys Jumping on the Bed”
“Happy Birthday to You”
“Head, Shoulders, Knees and Toes”
“Here Is the Beehive”
“I’m a Little Teapot”
“Kookaburra”
“Lazy Mary”
“Looby Loo”
“Oats, Peas, Beans and Barley Grow”
“Oh, Do You Know the Muffin Man?”
“Oh Where, Oh Where, Has My Little Dog Gone?”
“One Potato, Two Potato”
“Open, Shut Them”
“Pop Goes the Weasel”
“Teddy Bear, Teddy Bear, Turn Around”
“Teddy Bears Picnic”
“Where Is Thumbkin?”
“Who Stole the Cookie from the Cookie Jar?”
“You Are My Sunshine”

MATHEMATICS

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics has required incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives children a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of higher-order problem-solving skills, it is equally important—indeed, it is a prerequisite to achieving higher-order skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.

Counting and Cardinality

- Know number names and the count sequence.
  > Count to 100 by ones and by tens.
  > Count forward beginning from a given number within the known sequence.
  > Write numbers from 0 to 20.
  > Represent a number of objects with a written numeral 0–20.
- Count to tell the number of objects.
  > Understand the relationship between numbers and quantities
  > Connect counting to cardinality.
  > Count to answer “how many?” questions:
    » With as many as 20 things arranged in a line, a rectangular array, or a circle;
Shared Knowledge

» With as many as 10 things in a scattered configuration.
> Given a number from 1 to 20, count out that many objects.
• Compare numbers.
> Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group.
> Compare two numbers between 1 and 10 presented as written numerals.

Operations and Algebraic Thinking
• Understand addition as putting together and adding to, and understand subtraction as taking apart and taking from.
> Represent addition and subtraction with:
  » objects
  » fingers
  » mental images
  » drawings
  » sounds (e.g., claps)
  » acting out situations
  » verbal explanations
  » expressions
  » equations
> Solve addition and subtraction word problems (within 10).
> Decompose numbers less than or equal to 10 into pairs in more than one way.
  » Record each decomposition by a drawing or equation.
> For any number from 1 to 9, find the number that makes 10 when added to the given number.
  » Record the answer with a drawing or equation.
> Fluently add and subtract within 5.

Number and Operations in Base Ten
• Work with numbers 11–19 to gain foundations for place value.
> Understand that numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
> Compose and decompose numbers from 11 to 19 into ten ones.
  » Record each composition or decomposition by a drawing or equation.
**MEASUREMENT AND DATA**

- Describe and compare measurable attributes.
  - Describe measurable attributes of objects, such as length or weight.
  - Describe several measurable attributes of a single object.
- Directly compare two objects with a measurable attribute in common to see which object has more of / less of the attribute, and describe the difference.
  - Classify objects into given categories.
  - Count the numbers of objects in each category and sort the categories by count.

**GEOMETRY**

- Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
  - Describe objects in the environment using names of shapes, and describe the relative positions of these objects.
  - Correctly name shapes regardless of their orientations or overall size.
  - Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
- Analyze, compare, create, and compose shapes.
  - Analyze and compare two- and three-dimensional shapes:
    » In different sizes and orientations;
    » Using informal language to describe their similarities, differences, parts, and other attributes.
  - Model shapes in the world by building shapes from components and drawing shapes.
  - Compose simple shapes to form larger shapes.

**SCIENCE**

Teachers: Effective instruction in science requires hands-on experience and observation. In the words of the report from the National Academies of Science, *A Framework for K–12 Science Education*, “... children entering kindergarten have surprisingly sophisticated ways of thinking about the world, based in part on their direct experiences with the physical environment such as watching objects fall or collide and observing plants and animals. They also learn about the world through everyday activities,
such as talking with their families, pursuing hobbies, watching television, and playing with friends. As children try to understand and influence the world around them, they develop ideas about their role in that world and how it works. In fact, the capacity of young children—from all backgrounds and socioeconomic levels—to reason in sophisticated ways is much greater than has long been assumed. Although they may lack deep knowledge and extensive experience, they often engage in a wide range of subtle and complex reasoning about the world. Thus, before they even enter school, children have developed their own ideas about the physical, biological, and social worlds and how they work. By listening to and taking these ideas seriously, educators can build on what children already know and can do.”

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child’s scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child’s development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.

**Note:** Collaborate with your third-grade colleagues regarding future expectations and definitions of forces. See Grade 3, Investigating Forces.

**Pushes and Pulls**

**Teachers:** Through reading aloud, observation, and activities such as identifying examples of different kinds of pushes and pulls, explore the following with students:

A. **Pushes and Pulls Are Forces**
   - A force is a push or a pull.
   - Pushes and pulls can involve direct or indirect contact between objects.
   - Pushes and pulls can be explored in everyday life.

B. **Pushes and Pulls Can Change an Object’s Motion**
   - Pushes and pulls can cause objects that are not moving, or at rest, to move.
   - Pushes and pulls can change the motion,—the speed and/or direction—of objects.
> When objects collide with one another, the motions of the colliding objects can change direction.

C. Magnetism Is a Force
- Magnetism and gravity are examples of indirect, non-contact forces.
- Magnets are certain metals that can push or pull some metal objects.
- Magnets have two ends, called poles, that behave differently.
- Magnets can be useful in everyday devices (cabinet doors, refrigerator magnets).

Needs of Plants and Animals
Teachers: Through reading aloud, observation, and activities such as investigating growing plants in your classroom, introduce students to the needs of living things. Students should explore the following:

A. Plants and Animals
- A living thing is an organism.
- Organisms can grow, respond to environments, reproduce, and use food energy for life processes.
- Plants are organisms.
  > There are many types of plants.
  > Most plants have stems, roots, and leaves.
- Animals are organisms.
  > There are many types of animals.
  > Animals have certain parts for certain functions (structure: exoskeleton or skeleton; movement: legs, fins, wings; nutrition: mouth, digestive tract; protection: fur, shell).

B. Plants, Their Needs, and Their Environments
- Plants need air, water, light, and space.
- Plants get what they need from their environment.
- Different types of plants live in different types of environments.
- Plants make their own food using sunlight and air.

C. Animals, Their Needs, and Their Environments
- Animals need air, food, water, and shelter to survive.
- Animals get what they need from their environments.
• Different types of animals live in different types of environments.
• Animals get their food from eating other living things.

D. Humans, Their Needs, and Their Environments
• Human beings are a type of animal.
• Humans need air, food, water, and shelter to survive.
• Humans get what they need from their environment.
• Humans are omnivores.

Changing Environments
Teachers: The emphasis in kindergarten should be on observation, description, and explanation of real-world experiences of different environments and the exploration of how natural spaces can change over time. Technical explanations of ecological phenomena and human impacts on the environment should be taken up in later grades; see Grades 2, 3, and 5 for an increasingly more detailed study of Ecology.

A. Ecosystems
• Plants and animals live in environments that meet their needs.
  > habitats, ecosystems
• Changes in environment affect the organisms that live there.

B. Plants in Ecosystems
• Plants, such as water hyacinth and kudzu, can change ecosystems, affecting the ability of other living things in the ecosystem to meet their own needs.

C. Animals in Ecosystems
• Animals, such as the zebra mussel and the beaver, can change ecosystems, affecting the ability of other living things in the ecosystem to meet their own needs.

D. Human Changes in Ecosystems
• Humans can change ecosystems through roads, cities, pollution, etc., affecting the ability of other living things in the ecosystem to meet their own needs.

E. People Design Solutions to Reduce Human Impact
• People can make choices to reduce the amount of change they cause to ecosystems.
> Sustainable farming, reforestation, recycling, and pollution reduction

Note: Collaborate with your fifth-grade colleagues to connect this topic to learning in Grade 5, Protecting Earth’s Resources.

**WEATHER PATTERNS**

**Teachers:** The emphasis in kindergarten should be on observation, description, and explanation of real-world; technical explanations of meteorological phenomena should be taken up in later grades; see Grades 3 and 5 for an increasingly detailed study of Meteorology.

**A. Sunlight**
- The sun is a star that lights the sky during the daytime.
- Sunlight warms Earth’s surface.
- Blocking sunlight reduces its warming effect on Earth’s surface and materials.

**B. Patterns in Weather Conditions**
- Weather is what the air is like outside at any one time and place.
- People collect and record weather data, such as temperature, rainfall, wind speed and direction, to reveal patterns.
- Seasons are repeating patterns of weather within the course of a year.

**C. Severe Weather**
- Weather can be severe and can cause damage, for example, thunder, lightning, heavy rain, high wind, tornadoes, hail, blizzards, hurricanes, drought, and heat waves.
- Looking at patterns in weather data helps people predict, or forecast, when severe weather will occur.

**THE HUMAN BODY: OUR FIVE SENSES**

**A. Vision and Hearing**
- Vision is the ability to detect objects by light.
  > Eyes are the organs of vision.
- Hearing is the ability to detect sound.
  > The ears are the organs of hearing.
- The senses of sight and hearing enable people to perform many important tasks.
- Corrective lenses and hearing aids may help with vision and hearing impairments.
> Other ways to help those with impaired hearing or vision include sign language, assistive animals, and braille.

B. **Smell, Taste, and Touch**
- The sense of smell is the ability to detect scent/odor.
  > The nose is the organ of smell.
- The sense of taste is the ability to detect chemicals in the environment.
  > The taste buds enable a sense of taste.
- The sense of touch is the ability to feel things in the environment.
  > Nerves in the skin enable a sense of touch.

C. **Taking Care of Your Body**
- Proper care of the body helps all senses to work most effectively.
- Healthy foods promote wellness of the senses.

**Science Biographies**

**Teachers:** Through reading aloud and activities, explore with students the stories and accomplishments of these scientists and engineers. This list of science biographies is by no means exhaustive. Other individuals can be incorporated into learning during a corresponding topic of study for this grade level, and should include:
- Isaac Newton—English physicist and mathematician, described the roles of forces in the universe
- Rachel Carson—discussed the dangers of pesticides
- George Washington Carver—used plants for human benefit
- Abbe Cleveland—founded the National Weather Service
Early Grades from the Core Knowledge Sequence

GRADE 1

ENGLISH LANGUAGE ARTS

_The Common Core State Standards for English Language Arts_ emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the _Core Knowledge Sequence_ into the language arts block. Note that in the Sequence, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

**Note:** The objectives listed in sections I–IV of Language Arts below are consistent with the _Core Knowledge Language Arts_ program and embed all of the skills and concepts within the _Common Core State Standards for English Language Arts._

**Listening and Speaking**

**Teachers:** Traditional language arts instruction has typically accorded little, if any, attention to the ongoing development of children's listening and speaking ability. This failure to focus on the development of oral language in language arts instruction has been a serious oversight. Literacy, the ability to read and write written language, is highly correlated with students’ oral language proficiency, and the ability to understand a text read aloud is a prerequisite for making sense of the same text in printed form. It is therefore essential that children build listening and speaking competency while also developing reading and writing skills.

**A. Classroom Discussion**

- Participate in age-appropriate activities involving listening and speaking.
- Speak clearly with volume appropriate to the setting.
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc.
- Ask questions to clarify conversations, directions, exercises, and/or classroom routines.
Shared Knowledge

- Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments, or responding to a partner’s comments, with either an adult or another child of the same age.
- Identify and express physical sensations, mental states, and emotions of self and others.
- Understand and use language to express spatial and temporal relationships (*up, down, first, last, before, after*, etc.). Understand and use narrative language to describe people, places, things, locations, events, actions.
- Understand and use common sayings and phrases such as “Hit the nail on the head” and “Let the cat out of the bag.”

**B. Presentation of Ideas and Information**
- Follow multistep, oral directions.
- Give simple directions.
- Provide simple explanations.
- Recite a nursery rhyme, poem, or song independently, using appropriate eye contact, volume, and clear enunciation.
- Give oral presentations about personal experiences, topics of interest, and/or stories, using appropriate eye contact, volume, and clear enunciation.

**C. Comprehension and Discussion of Read-Alouds—All Texts**

Teachers: Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This can be done through frequent reading aloud. Helping young children develop the ability to listen to and understand written texts read aloud must be an integral part of any initiative designed to build literacy.

At the first-grade level, students’ ability to understand what they hear far outpaces their ability to independently read and understand written text. By listening to stories or nonfiction selections read aloud, students can experience the complexities of written language without expending cognitive energy on decoding; they can likewise access deeper and more complex content knowledge than they are presently able to read independently.

Careful consideration should be given to the selection of books read aloud to ensure that the vocabulary and syntax presented is rich and
complex. Leveled texts will not provide the rich language experience desired during read-alouds and should only be used as a starting point with students for whom English is a second language.

Nonfiction read-alouds should be selected on the basis of the history, science, music, and visual art topics identified for Grade 1 students in the Core Knowledge Sequence, with emphasis on history and science read-alouds. It is strongly recommended that daily read-alouds focus on a single topic over a sustained period of time—about two weeks—rather than intermingling read-alouds on a variety of subjects. Careful consideration should be given to the order in which nonfiction read-alouds are presented to ensure that knowledge about a topic builds in a progressive and coherent way.

Following any read-aloud, students should participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational texts, and poems.
- Distinguish the following genres of literature: fiction, nonfiction, and drama.

**Grasping Specific Details and Key Ideas**

- Describe illustrations.
- Sequence four to six pictures illustrating events in a read-aloud.
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc.
- Retell key details.
- Ask questions to clarify information in a read-aloud. Use narrative language to describe people, places, things, locations, events, actions, a scene, or facts in a read-aloud.

**Observing Craft and Structure**

- Understand and use words and phrases heard in read-alouds.
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds.
- Make personal connections to events or experiences in a read-
aloud and/or make connections among several read-alouds.

**INTEGRATING INFORMATION AND EVALUATING EVIDENCE**

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud.
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud.
- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships.
- Interpret information that is presented orally and then ask additional questions to clarify information or the topic in the read-aloud.
- Identify who is telling a story or providing information in a text.

**D. Comprehension and Discussion of Read-Alouds—Fiction, Drama, and Poetry**

- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
- Compare and contrast characters from different stories.
- Change some story events and provide a different story ending.
- Create and tell an original story, using narrative language to describe characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
- Identify sensory language and how it is used to describe people, objects, places, and events.
E. Comprehension and Discussion of Read-Alouds—Nonfiction and Informational Texts

Teachers: Select nonfiction read-aloud topics from the first-grade history, science, music, and visual arts topics, with emphasis on history and science.

- Generate questions and seek information from multiple sources to answer questions.
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions.
- With assistance, categorize and organize facts and information within a given topic. With assistance, create and interpret timelines and lifelines related to read-alouds.
- Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events.

Reading

A. Print Awareness

- Demonstrate understanding that what is said can be written and that the writing system is a way of writing down sounds.
- Demonstrate understanding of directionality (left to right, return sweep, top to bottom, front to back).
- Identify the parts of books and the function of each part (front cover, back cover, title page, table of contents).
- Recognize that sentences in print are made up of separate words.
- Understand that words are separated by spaces.
- Distinguish letters, words, sentences, and stories.
- Demonstrate understanding of basic print conventions by tracking and following print word for word when listening to text read aloud.
- Demonstrate understanding that the sequence of letters in a written word represents the sequence of sounds in the spoken word.
- Recognize and name the twenty-six letters of the alphabet in both their uppercase and lowercase forms.
- Say the letters of the alphabet in order, either in song or recitation.
B. Phonemic Awareness

- Demonstrate understanding that words are made up of sequences of sounds.
- Demonstrate understanding that vowel sounds are produced with the mouth open and airflow unobstructed, whereas consonant sounds involve closing parts of the mouth and blocking the airflow.
- Given a pair of spoken words, select the one that is longer (i.e., contains more phonemes).
- In riddle games, supply words that begin with a target phoneme.
- Indicate whether a target phoneme is or is not present in the initial/medial/final position of a spoken word, e.g., hear /m/ at the beginning of *mat* and /g/ at the end of *bag*.
- Listen to one-syllable words and tell the beginning or ending sounds, e.g., given the word *dog*, identify initial /d/ or final /g/.
- Recognize the same phoneme in different spoken words, e.g., /b/ in *ball*, *bug*, and *big*.
- Identify whether pairs of phonemes are the same or different, including pairs that differ only in voicing, e.g., /b/ and /p/.
- Orally blend two or three sounds to form a word, e.g., given the sounds /k/.../a/.../t/, blend to make *cat*.
- Segment a spoken word into phonemes, e.g., given *bat*, produce the segments /b//a//t/.
- Given a spoken word, produce another word that rhymes, e.g., given the word *hit*, supply *bit* or *mitt*.
- Identify the number of syllables in a spoken word.

C. Phonics: Decoding and Encoding

**Teachers:** Learning to read requires understanding and mastering the written English code through explicit and systematic phonics instruction. Research suggests that phonics instruction is most effective when specific letter-sound relationships are taught and reinforced by having students both read and write the letter-sound correspondence being studied. Reading and writing—decoding and encoding—are complementary processes that ensure mastery of the written code.

- Demonstrate understanding that a systematic, predictable relationship exists between written letters (graphemes) and spoken sounds (phonemes).
• Blend individual phonemes to pronounce printed words.
• Understand that sometimes two or more printed letters stand for a single sound.
• Read one- or two-syllable words containing any of the grapheme-phoneme correspondences listed below.
• Read and write words with inflectional endings, i.e., -s, -ed, -ing, -er, -est.
• Read, understand, and write contractions, i.e., isn’t, I’m, can’t, etc.
• Sort and classify words according to the spelling used to represent a specific phoneme.
• Read tricky spellings that can be sounded two ways, e.g., the letter s sounded /s/ as in cats and /z/ as in dogs.
• Read and spell chains of one-syllable words in which one sound is added, substituted, or omitted, i.e., read at > cat > bat > bad > bid.
• Read at least thirty words generally identified as high frequency words.

**Consonant Sounds and Spellings Taught in First Grade**

/b/ spelled ‘b’ as in boy, ‘bb’; as in tubby
/d/ spelled ‘d’ as in dog, ‘dd’ as in madder, ‘ed’ as in filled
/f/ spelled ‘f’ as in fun, ‘ff’ as in stuff
/g/ spelled ‘g’ as in get, ‘gg’ as in egg
/h/ spelled ‘h’ as in him
/j/ spelled ‘j’ as in jump, ‘g’ as in gem, ‘ge’ as in fringe
/k/ spelled ‘c’ as in cat, ‘k’ as in kitten, ‘ck’ as in sick, ‘cc’ as in moccasin
/l/ spelled ‘l’ as in lip, ‘ll’ as in sell
/m/ spelled ‘m’ as in mad, ‘mm’ as in hammer
/n/ spelled ‘n’ as in net, ‘nn’ as in funny, ‘kn’ as in knock
/p/ spelled ‘p’ as in pet, ‘pp’ as in happy
/r/ spelled ‘r’ as in red, ‘rr’ as in earring, ‘wr’ as in wrist
/s/ spelled ‘s’ as in sit, ‘ss’ as in dress, ‘c’ as in cent, ‘ce’ as in prince, ‘se’ as in rinse
/t/ spelled ‘t’ as in top, ‘tt’ as in butter, ‘ed’ as in asked
/v/ spelled ‘v’ as in vet, ‘ve’ as in twelve
/w/ spelled ‘w’ as in wet, ‘wh’ as in when
/x/ spelled ‘x’ as in tax
/y/ spelled ‘y’ as in yes
/z/ spelled ‘z’ as in zip, ‘zz’ as in buzz, ‘s’ as in dogs
/ch/ spelled ‘ch’ as in chop, ‘tch’ as in itch
/sh/ spelled ‘sh’ as in ship
/th/ spelled ‘th’ as in thin
/th/ spelled ‘th’ as in then
/qu/ spelled ‘qu’ as in quick
/ng/ spelled ‘ng’ as in sing, ‘n’ as in pink

**Vowel Sounds and Spellings Taught in First Grade**

/a/ spelled ‘a’ as in cat
/e/ spelled ‘e’ as in get
/i/ spelled ‘i’ as in hit
/o/ spelled ‘o’ as in hot
/u/ spelled ‘u’ as in but

/ae/ spelled ‘a_e’ as in cake, ‘ai’ as in wait, ‘ay’ as in day, ‘a’ as in paper
/ee/ spelled ‘ee’ as in bee, ‘e’ as in me, ‘y’ as in funny, ‘ea’ as in beach, ‘e_e’

/ie/ spelled ‘i_e’ as in bike, ‘i’ as in biting, ‘y’ as in try, ‘ie’ as in tie, ‘igh’

/oo/ spelled ‘oo’ as in look, /oo/ spelled ‘oo’ as in soon

/ou/ spelled ‘ou’ as in shout

/o/ spelled ‘oi’ as in oil
/er/ spelled ‘er’ as in her
/ar/ spelled ‘ar’ as is car
/or/ spelled ‘or’ as in for

D. Oral Reading and Fluency

- Read decodable stories that incorporate the specific code knowledge that has been taught.
- Demonstrate increased accuracy, fluency, and expression on successive reading of a decodable text (50 wpm by the end of the year).
- Use phonics skills in conjunction with context to confirm or self-correct word recognition and understanding, rereading as necessary.
• Demonstrate understanding of and use of commas and end punctuation while reading orally.
• Read aloud, alone, or with a partner at least 15 minutes each day.

E. Reading Comprehension—All Texts

Teachers: During the beginning of first grade, most students will still need to devote considerable energy when reading to deciphering the written text. Over the course of this year, they will learn even more elements of the code, meaning that the decodable texts that they can read independently will increasingly resemble “real stories” and trade books. With practice and repeated readings of the same text, students will develop increasing automaticity, allowing them to focus more intently on the meaning of what they are reading. Both of these factors, i.e., the student’s increasing fluency and the use of more authentic text—which is now decodable because of the student’s increasing code knowledge—mean that attention to reading comprehension can move to a higher level than just the rudimentary understanding of text expected at the kindergarten level. This expectation is reflected in the increased number of objectives below that have been added to the kindergarten level objectives. However, it is important to remember that listening comprehension still far exceeds reading comprehension and that children’s ability to talk about what they have heard and/or read will exceed their ability to demonstrate that understanding in writing.
• Demonstrate understanding of completely decodable text after reading independently.

Grasping Specific Details and Key Ideas

• Sequence four to six pictures illustrating events from a text that has been read independently.
• Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently.
• Retell key details from a text that has been read independently.
• Ask questions to clarify information about a text that has been read independently.
• Use narrative language to describe people, places, things, locations, events, actions, a scene, or facts from a text that has been read independently.
Shared Knowledge

Observing Craft and Structure
- Identify basic text features and what they mean, including title, table of contents, and chapters.
- Understand and use words and phrases from a text that has been read independently.
- Compare and contrast similarities and differences within a single text or between multiple texts read independently.
- Make personal connections to events or experiences in a text that has been read independently and/or make connections among several texts that have been read independently.

Integrating Information and Evaluating Evidence
- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read.
- Use pictures accompanying the written text to check and support understanding.
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is read independently, including answering “why” questions that require recognizing cause/effect relationships.
- Identify who is telling a story or providing information in a text.
- Identify temporal words that link and sequence events, i.e., first, next, then, etc. Identify words that link ideas, i.e., for example, also, in addition.

F. Reading Comprehension—Fiction, Drama, and Poetry
- Retell or dramatize a story, using narrative language to describe characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
- Compare and contrast characters from different stories.
- Change some story events and provide a different story ending.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
- Demonstrate understanding of literary language (e.g., author,
illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.

- Identify sensory language and how it is used to describe people, objects, places, and events.

G. **Reading Comprehension—Nonfiction and Informational Texts**

*Teachers:* Select nonfiction topics from the first-grade history, science, music, and visual arts topics, with emphasis on history and science.

- With assistance, create and interpret timelines and lifelines related to texts read independently.
- Distinguish texts that describe events that happened long ago from texts that describe contemporary or current events.

**Writing**

*Teachers:* It is important to recognize that of all the communication skills—listening, speaking, reading, and writing—writing is the most demanding and challenging. During the beginning of first grade, students still need to devote much of their focus and cognitive energy to the code itself, as well as the fine-motor act of writing. During this period, teachers should continue to support written expression through shared writing experiences that are modeled and scaffolded by an adult.

At some point during the first-grade year, however, most students will feel comfortable enough with the basic skills to begin making a transition to writing more independently. Young children’s desire to express themselves in writing should be heartily encouraged. To this end, it is important that teachers have age-appropriate expectations about what first-grade student writing should resemble. Students have not been taught all of the spellings they will need to achieve dictionary-correct spelling. It is therefore premature to expect that words in their independent writing will be spelled correctly. It is reasonable to expect students to use the letter-sound correspondences they have learned to set down plausible spellings for the sounds in the word. For example, a student who writes *bote* for *boat*, *dun* for *done*, or *hed* for *head* has set down a plausible spelling for each sound in the word, using the code knowledge taught in this grade. This should be seen as good spelling for this stage of literacy acquisition. Dictionary-correct spelling will be a realistic goal when students have learned more spellings and learned how to use a dictionary to check spelling.
Furthermore, while teachers can begin to model and scaffold the use of a writing process, such as “Plan-Draft-Edit,” it is equally important not to dampen student enthusiasm by rigidly insisting that all student writing be edited over and over again to bring the text to the “publication” stage. A sensible balance that encourages children to use their current skill knowledge when writing—without stifling creative expression—is optimal at the first-grade level.

**Writing to Reflect Audience, Purpose, and Task**
- Add details to writing.
- Begin to use tools, including technology, to plan, draft, and edit writing.

**Conducting Research**
- Gather information from experiences or provided text sources.

A. Narrative Writing
- Write or retell a story that includes characters, setting(s), and a beginning, a middle, and an end to events of the story in proper sequence.
- Write a descriptive paragraph using sensory language.
- Create a title and an ending that are relevant to the narrative.

B. Informative/Explanatory Writing
- Write about a topic, including a beginning and ending sentence, facts and examples relevant to the topic, and specific steps (if writing explanatory text).

C. Persuasive Writing (Opinion)
- Express an opinion or point of view in writing, providing reasons and supporting details for preference or opinion using the linking word *because*.
- Create a title that is relevant to the topic or subject of the text.
- If writing about a specific book or read-aloud, refer to the content of the text.

**Language Conventions**
- Form letters, words, phrases, and sentences to communicate thoughts and ideas.
- Apply basic spelling conventions.
- Use basic capitalization and punctuation in sentences to convey meaning.
A. Handwriting and Spelling

- Print from memory the twenty-six letters of the alphabet accurately in both their uppercase and lowercase forms.
- Write on primary lined paper from left to right, staying within the lines and leaving spaces between words, and from top to bottom, using return sweep.
- Write phonemically plausible spellings for words that cannot be spelled correctly with current code knowledge, e.g., write *ate* for *eight*, *boi* for *boy*, *fone* for *phone*.
- Write words, phrases, and sentences from dictation, applying phonics knowledge.
- Identify and use synonyms and antonyms.

B. Parts of Speech and Sentence Structure

- Recognize, identify, and use subject, object, and possessive pronouns, i.e., *I, me, my, they, them*, orally, in written text, and in own writing.
- Recognize, identify, and use common and proper nouns orally, in written text, and in own writing.
- Recognize, identify, and use regular verbs to convey a sense of past, present, and future tense orally, in written text, and in own writing.
- Recognize, identify, and use adjectives orally, in written text, and in own writing.
- Recognize, identify, and use subjects and predicates orally, in written text, and in own writing.
- Recognize, identify, and use statements, questions, and exclamations orally, in written text, and in own writing.
- Produce and expand complete sentences orally and in shared writing exercises.

C. Capitalization and Punctuation

- Capitalize the first word in a sentence, the pronoun *I*, and proper nouns (names and places), months, days of the week.
- Identify and use end punctuation, including periods, question marks, and exclamation points.
- Use commas appropriately in greetings and closings of letters, dates, and items in a series.
• Write a simple friendly letter.
• Use apostrophes to create contractions and indicate possession, i.e., cat’s meow.
• Use quotation marks appropriately to designate direct speech.

**Poetry**

The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose children to more poetry, old and new, and to have students write their own poems. To bring students into the spirit of poetry, read it aloud and encourage them to speak it aloud so they can experience the music in the words. Although students are not expected to memorize the following rhymes, they will delight in knowing their favorites by heart, and will experience a sense of achievement and satisfaction in being able to recite some of the rhymes.

“Hope” (Langston Hughes)
“I Know All the Sounds the Animals Make” (Jack Prelutsky)
“The Owl and the Pussycat” (Edward Lear)
“The Pasture” (Robert Frost)
“The Purple Cow” (Gelett Burgess)
“Rope Rhyme” (Eloise Greenfield)
“Sing a Song of People” (Lois Lenski)
“Solomon Grundy” (traditional)
“The Swing” (Robert Louis Stevenson)
“Table Manners” [also known as “The Goops”] (Gelett Burgess)
“Thanksgiving Day” [“Over the river and through the wood”] (Lydia Maria Child)

“Washington” (Nancy Byrd Turner)
“Wynken, Blynken, and Nod” (Eugene Field)

**Fiction**

Teachers: While the following works make up a strong core of literature, the content of language arts includes not only stories, fables, and poems, but also the well-practiced, operational knowledge of how written symbols represent sounds, and how those sounds and symbols convey meaning. Thus, the stories specified below are meant to complement, not replace, materials designed to help students practice decoding and encoding skills (see above, II. Reading and III. Writing).
The titles here constitute a core of stories for this grade. They are available in a variety of editions, some designed for novice readers, and others best for reading aloud to children. In first grade, most of the following titles should be read-aloud selections. It is recommended that you provide a mixture of texts, including some beginning readers, with their necessarily limited vocabulary and syntax, for these can give children the important sense of accomplishment that comes from being able to “read it all by myself.”

Expose students to many more stories, including classic picture books and read-aloud books. (In schools, teachers across grade levels should communicate their choices in order to avoid undue repetition.) Students should also be exposed to nonfiction prose—biographies, books on science and history, books on art and music—and they should be given opportunities to tell and write their own stories.

A. Stories

“The Boy at the Dike” (folktale from Holland)  
“The Frog Prince”  
“Hansel and Gretel”  
selections from The House at Pooh Corner (A. A. Milne)  
“How Anansi Got Stories from the Sky God” (folktale from West Africa)  
“It Could Always Be Worse” (Yiddish folktale)  
“Jack and the Beanstalk”  
“The Knee-High Man” (African-American folktale)  
“Medio Pollito” (Hispanic folktale)  
“The Pied Piper of Hamelin”  
“Pinocchio”  
“The Princess and the Pea”  
“Puss-in-Boots”  
“Rapunzel”  
“Rumpelstiltskin”  
“Sleeping Beauty”  
*The Tale of Peter Rabbit* (Beatrix Potter)  
“Br’er Rabbit Gets Br’er Fox’s Dinner,” “Br’er Rabbit Tricks Br’er Bear,” “Br’er Rabbit and the Tar Baby”)  
“Why the Owl Has Big Eyes” (Native American legend)
B. Aesop’s Fables

“The Boy Who Cried Wolf”
“The Dog in the Manger”
“The Wolf in Sheep’s Clothing”
“The Maid and the Milk Pail”
“The Fox and the Grapes”
“The Goose and the Golden Eggs”

C. Different Lands, Similar Stories

Teachers: To give students a sense that people all around the world tell certain stories that, while they differ in details, have much in common, introduce students to similar folktales from different lands, such as the following:

“Lon Po Po” (China) and Little Red Riding Hood
“Issun Boshi,” or “One-Inch Boy” (Japan)
“Tom Thumb” (England)
“Thumbelina” (by the Danish writer Hans Christian Andersen)
“Little Finger of the Watermelon Patch” (Vietnam)
Some of the many variations on the Cinderella story (from Europe, Africa, China, Vietnam, Egypt, Korea, etc.)

D. Literary Terms

- Characters, heroes, and heroines
- Drama
  > actors and actresses
  > costumes, scenery, and props
  > theater, stage, audience

Note: Students should learn terms relating to drama as part of their participation in a play appropriate for first graders—possibly a dramatized version of one of the stories listed above.

E. Sayings and Phrases

Teachers: Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many students, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with students from home cultures that differ from the standard culture of literate American English.
a.m. and p.m.
An apple a day keeps the doctor away.
Do unto others as you would have them do unto you. [also in kindergarten]
Fish out of water
Hit the nail on the head.
If at first you don’t succeed, try, try again.
Land of Nod
Let the cat out of the bag.
The more the merrier
Never leave till tomorrow what you can do today.
Practice makes perfect. [also in kindergarten]
Sour grapes
There’s no place like home.
Wolf in sheep’s clothing

HISTORY AND GEOGRAPHY

Teachers: In first grade, students often study aspects of the world around them: the family, the school, the community, etc. The following guidelines are meant to broaden and complement that focus. The goal of studying selected topics in world history in first grade is to foster curiosity and the beginnings of understanding about the larger world outside the child’s locality, and about varied civilizations and ways of life. This can be done through a variety of means: story, drama, art, music, discussion, and more.

The study of geography embraces many topics throughout the Core Knowledge Sequence, including topics in history and science. Geographic knowledge embraces a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

It is important that students learn about the people who shaped our world, as well as those who continue to do so. Thus, it is recommended that students listen to a variety of biographies. Engaging students in read-alouds about the individuals listed in the Sequence, as well as other people, enables them to draw from a broader perspective.
WORLD HISTORY AND GEOGRAPHY

**Geography**

A. Spatial Sense (Working with Maps, Globes, and Other Geographic Tools)

**Teachers:** Foster students’ geographical awareness through regular work with maps and globes. Have students regularly locate themselves on maps and globes in relation to places they are studying.

- Name your continent, country, state, and community.
- Understand that maps have keys or legends with symbols and their uses.
- Find directions on a map: east, west, north, south.
- Identify the major oceans: Pacific, Atlantic, Indian, Arctic, Southern.
- Review the seven continents: Asia, Europe, Africa, North America, South America, Antarctica, Australia.
- Locate Canada, the United States, Mexico, Central America, South America.
- Locate the equator, Northern Hemisphere, Southern Hemisphere, North and South Poles.

B. Geographical Terms and Features

- peninsula, harbor, bay, island, ocean, sea

**Note:** The Southern Ocean is the newest named ocean basin. It is recognized by the U.S. Board on Geographic Names as the body of water extending from the coast of Antarctica to the line of latitude at 60 degrees South.

**Early World Civilizations**

**Teachers:** As you introduce students to early civilizations, keep in mind the question, What is civilization? Help students see recurring features such as settling down, agriculture, building towns and cities, and learning how to write.

A. Mesopotamia: The “Cradle of Civilization”

- Importance of Tigris and Euphrates Rivers
- Farming methods, organized settlements
- Development of writing, why writing is important to the development of civilization
- Code of Hammurabi (early code of laws), why rules and laws are important to the development of civilization
Note: Students will be introduced to Hinduism and Buddhism in Grade 2, and examine Islam in more detail in Grade 4. They also examine lasting ideas from Judaism and Christianity in Grade 6.

B. Ancient Egypt

- Geography
  > Transcontinental country (Africa and Asia)
  > Sahara Desert Importance of Nile River, floods and farming
- Importance of Nile River, floods, farming
- Pharaohs
  > Tutankhamen
  > Hatshepsut, woman pharaoh
- Pyramids and mummies, animal gods and goddesses, Sphinx
- Writing: hieroglyphics

Note: See also Visual Arts Grade 1: Art from Long Ago: Art of Ancient Egypt.

C. History of World Religions

Teachers: Since religion is a shaping force in the story of civilization, the Core Knowledge Sequence introduces students in the early grades to major world religions, beginning with a focus on geography and major symbols and figures. The purpose is not to explore matters of theology but to provide a basic vocabulary for understanding many events and ideas in history. The goal is to familiarize, not proselytize; to be descriptive, not prescriptive. The tone should be one of respect and balance: no religion should be disparaged by implying that it is a thing of the past. To the question, “Which one is true?” an appropriate response is “People of different faiths believe different things to be true. The best people to guide you on this right now are your parents or someone at home.”

- Judaism
  > Belief in one God
  > Story of the Exodus: Moses leads the Hebrews out of Egypt
  > Israel, Chanukah, Star of David, Torah, synagogue
- Christianity
  > Christianity grew out of Judaism
  > Jesus, meaning of “messiah”
  > Christmas and Easter, symbol of the cross
Shared Knowledge

- Islam
  > Originated in Arabia, since spread worldwide
  > Followers are called Muslims
  > Allah, Muhammad, Makkah, Qur’an, mosque
  > Symbol of crescent and star (found on the flags of many mainly Islamic nations)

Note: In older sources you may find these formerly used spellings: Mohammed, Mecca, Koran.

Note: For historical connections, see American History Grade 1: Maya and Aztec Civilizations; Conquistadors, Cortes, Moctezuma. See also Music Grade 1: “La Raspa”; Language Arts Grade 1: “Medio Pollito,” and Visual Arts Grade 1: Diego Rivera, The History of Medicine in Mexico (mural).

Modern Civilization and Culture: Mexico

A. Geography
- North American continent, locate Mexico relative to Canada and the United States
- Central America, Yucatan Peninsula
- Pacific Ocean, Gulf of Mexico, Rio Grande
- Mexico City

B. Culture
- Indigenous and Spanish heritage
- Mexican flag
- Traditions: fiesta, piñata, Day of the Dead
- National holiday: September 16, Independence Day

American History and Geography

Teachers: The study of American history begins in grades K–2 with a brief overview of major events and figures, from the earliest days to recent times. A more in-depth, chronological study of American history begins again in Grade 3 and continues onward. The term “American” here generally, but not always, refers to the lands that became the United States. Other topics regarding North, Central, and South America may be found in the World History and Geography sections of this Sequence.

Early People and Civilizations

A. The Earliest People: Hunters and Nomads
- Crossing from Asia to North America (Beringian Land Bridge
Theory or Kelp Highway)
> From hunting to farming
> Gradual development of early towns and cities

B. Early American Civilizations

Teachers: Students will study the Maya, Inca, and Aztec civilizations in detail in Grade 5. First-grade teachers should examine the fifth-grade guidelines to see how these topics build in the later grade. Here, introduce students to these civilizations. Though it is historically accurate to note the warlike nature of the Maya and Aztecs, it is recommended that mention of the practice of human sacrifice be left to the fifth grade.

- Maya in Mexico and Central America
  > Mayan Calendar
  > Culture: Farming methods, religious beliefs, temples
- Aztecs in Mexico
  > Moctezuma (also called Montezuma)
  > Tenochtitlan (Mexico City)
- Inca in South America (Peru, Chile)
  > Cities in the Andes, Machu Picchu

Early Exploration and Settlement

A. Columbus

Teachers: Review from kindergarten the story of Columbus’s voyage in 1492. Note that while Columbus Day is an important holiday for many Americans, in some states the holiday has been renamed Indigenous People’s Day in recognition of the harm that was caused to the indigenous peoples of the Americas by explorers, adventurers, and settlers from Europe. In fact, Columbus did enslave the Taino people and take them back to Europe with him. Although elements of Columbus’s story are dark, his voyages do mark a great change in the history of the world.

B. The Conquistadors

- The search for gold and silver
- Hernán Cortés and the Aztecs
- Francisco Pizarro and the Inca
- Diseases devastate Native American population

C. English Settlers

- The story of the Lost Colony
Shared Knowledge

- Sir Walter Raleigh
- Virginia Dare

Virginia
- Jamestown
- Captain John Smith
- Pocahontas and Powhatan

- Enslavement of people brought by force from Africa, plantations in Southern colonies

Massachusetts
- Pilgrims
  » Mayflower
  » Native Americans helped Pilgrims survive, Tisquantum (Squanto)
  » Thanksgiving Day
- Massachusetts Bay Colony, the Puritans
- Development of towns and cities

From Colonies to Independence: The American Revolution

Teachers: The American Revolution will be studied in greater depth and detail in Grade 4. First-grade teachers should examine the fourth-grade guidelines to see how these topics build in the later grade. It is recommended that first-grade teachers focus on the topics specified here, and leave for fourth grade the more detailed study of the Revolution. In first grade, emphasize the story of the birth of our nation.

- Locate the original thirteen colonies.
- The Boston Tea Party
- Paul Revere’s ride, “One if by land, two if by sea”
- The colonists were fighting the British to gain their freedom.
- Minutemen and Redcoats, the “shot heard round the world”
- Thomas Jefferson and the Declaration of Independence, “We hold these truths to be self-evident, that all men are created equal. . . .”
- Fourth of July
- Benjamin Franklin: patriot, inventor, writer
- George Washington: from military commander to our first president
  » Martha Washington
  » Our national capital city named Washington
- Legend of Betsy Ross and the flag
Early Exploration of the American West

Teachers: America’s westward growth will be studied in Grade 2 and in greater depth and detail in Grade 5. First-grade teachers should examine the second- and fifth-grade guidelines to see how these topics build in later grades.

- Daniel Boone and the Wilderness Road
- The Louisiana Purchase
  - Explorations of Lewis and Clark (Corps of Discovery), Sacagawea
  - The Mandan Tribe and Fort Mandan
  - Port of New Orleans
- Geography: Locate the Appalachian Mountains, the Rocky Mountains, and the Mississippi River.

Symbols and Figures

- Recognize and become familiar with the significance of
  - Liberty Bell
  - Current US president
  - American flag
  - Bald eagle

Visual Arts

Teachers: In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. The following guidelines specify a variety of artwork in different media and from various cultures in order to expose students to a wide range of art and artists. While the list is robust, it may require teachers to narrow the selection in order to adequately address the works and related skills within an academic year.

Art from Long Ago

Teachers: Help students see how art has been an important human activity since early times.

- Look at and discuss
  - Cave paintings
    - Running Horses from Cave of Lascaux
Elements of Art

Teachers: The generally recognized elements of art include line, shape, form, space, light, texture, and color. In first grade, focus on the following:

A. Color

Teachers: Review from kindergarten the idea of “warm” and “cool” colors.

- Know that red, yellow, and blue are commonly referred to as the “primary colors,” and that
  - blue + yellow = green
  - blue + red = purple
  - red + yellow = orange
- Observe the use of color in
  - *Tulips in Holland*, Claude Monet
  - McNeill Whistler, *Arrangement in Black and Grey (Whistler’s Mother)*
  - Diego Rivera, *Piñata*
  - Romaine Brooks, *Emile d’Erlanger La Baronne* (1924)
  - Pedro Linares, *Alebrijes* (1930s)
  - Retablos
  - Dr. Atl (Gerardo Murillo), *Popocatépetl volcano* (1940)

Note: See also World History Grade 1: Ancient Egypt. See also World History Grade 1: Mexico, re piñata.

Note: Compare Adnan to Monet.

B. Line

- Identify and use different lines: straight, zigzag, curved, wavy, spiral, thick, thin
- Observe how different lines are used in
  - Jacob Lawrence, *Parade*
  - Henri Matisse, *The Swan*
  - Georgia O’Keeffe, *Shell*
> John Audubon, *Trumpeter Swan* (1838)
> Lola Álvarez Bravo, *El baño* (1930)
> Elizabeth Catlett, *La Presa* (1952)
> Leonard Freed, *Fire Hydrant* (1963)
> Juan Quezada Celado, Mata Ortiz pottery (1970s)

**Note:** Compare Audubon’s *Trumpeter Swan* to Matisse. The Trumpeter Swan can also be used to address texture.

### C. Shape
- Recognize basic geometric shapes—square, rectangle, triangle, circle, oval—in nature, man-made objects, and artworks, including
  > Grant Wood, *Stone City, Iowa*
  > Sophie Taeuber-Arp, *Dada Head* (1920)
  > Marisol, *The Family* (1962)

### D. Texture
**Teachers:** Provide opportunities for students to experience both tactile and visual texture (these terms are for your reference only) by having them describe qualities of texture in natural objects (tactile texture) and in works of art (visual texture).
- Describe qualities of texture (as, for example, rough, smooth, bumpy, scratchy, slippery, etc.) in
  > Native American baskets
  > Edgar Degas, *Little Fourteen-Year-Old-Dancer*
  > Albrecht Dürer, *Young Hare*
  > Lina Iris Viktor, *In the Beginning Was Chaos* (2020)

**Kinds of Pictures**
**Teachers:** Introduce students to the terms we use to describe different kinds of paintings, discuss examples, and provide opportunities for students to create their own works in different genres. When you look at the specified works, ask the students about their first impressions—what they notice first, and what the picture makes them think of or feel. Go on to discuss lines, shapes, colors, and textures; details not obvious at first; why they think the artist chose to depict things in a certain way, etc.
A. Portrait
- Recognize as a portrait or self-portrait:
  > Leonardo da Vinci, *Mona Lisa*
  > Francisco Goya y Lucientes, *Don Manuel Osorio Manrique de Zuñiga*
  > Vincent van Gogh, *Self-Portrait* (1889)
  > Frida Kahlo, *Self Portrait with Necklace of Thorns* (1940)
  > Horace Pippin, *Self-Portrait II* (1944)

B. Still Life
- Recognize as a still life:
  > Vincent van Gogh, *Irises*
  > Paul Cézanne, *Apples and Oranges*
  > Clara Peeters, *Table with Orange, Olives and Pie* (1611)

C. Murals
- Recognize as a mural (a painting on a wall):
  > Diego Rivera, *The History of Medicine in Mexico*
  > David Alfaro Siqueros, *The Revolution*

D. Architecture
- Discuss shape of architectural structures and the different ways they were used, such as
  > Ziggurat of Ur in Ancient Mesopotamia
  > Great Pyramids of Egypt
  > Teotihuacan: Pyramid of the Moon

Note: See also World History Grade 1: Mexico, murals of Diego Rivera.

Note: Ask students to think about why the same forms would be built in different places in the world without there being any communication between them (as in the case of Teotihuacán).

MUSIC

Teachers: In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines. The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing...
Elements of Music

- Through participation become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  > Recognize a steady beat; moving to a beat; play a steady beat; recognize accents.
  > Move responsively to music (marching, walking, hopping, swaying, etc.).
  > Participate in play party activities and dance (e.g., *Chimes of Dunkirk*, *Les Saluts*).
  > Engage in improvisation activities (e.g., *Highway Number One*, *There Was a Man and He Was Mad*).
  > Recognize short and long sounds.
  > Discriminate between fast and slow.
  > Discriminate between obvious differences in pitch: high and low.
  > Discriminate between loud and soft.
  > Understand that melody can move up and down.
  > Hum the melody while listening to music.
  > Echo short rhythms and melodic patterns.
  > Participate in call-and-response activities (e.g., *Funga Alafia*, *Down By the Bay*, *Che Che Kule*).
  > Play simple rhythms and melodies.
  > Recognize like and unlike phrases.
  > Recognize that music has timbre or tone color.
  > Sing unaccompanied, accompanied, and in unison.
- Recognize (aurally) the following frequently used Italian terms:
  > *adagio* (slow)
  > *moderato* (medium)
  > *allegro* (fast)
- Understand that music is written down in a special way and become familiar with the following notation:

**Teachers:** Consider introducing the count system for each note (i.e., “ta” for quarter notes and “ti ti” for eighth notes).

- ♩ quarter note, ♪ eighth note
Note: The expectation is that students understand what these words mean when spoken. It is not expected that they recognize the written words.

**Listening and Understanding**

Teachers: Expose students to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

**A. Musical Terms and Concepts**

- **Composers**
  - Know that a composer is someone who writes music.
  - Become familiar with Wolfgang Amadeus Mozart as a composer who wrote what is known as classical music, and listen to the Allegro (first movement) from *A Little Night Music* (*Eine kleine Nachtmusik)*.

- **Orchestra**
  - Become familiar with the families of instruments in the orchestra: strings, brass, woodwinds, percussion.
  - Know that the leader of the orchestra is called the conductor. Listen to Sergei Prokofiev, *Peter and the Wolf*.

Note: Students will review families of instruments and specific instruments in later grades.

**B. Music Can Tell a Story**

- **Opera**
  - Understand that opera combines music, singing, and acting.
  - Listen to selections from Humperdinck’s *Hansel and Gretel*: “Brother, Come Dance with Me,” “I Am the Little Sandman,” “Children’s Prayer.”

- **Instrumental Music**
  - Listen to Paul Dukas, *The Sorcerer’s Apprentice*.

- **Ballet**
  - Understand that ballet combines music and movement, often to tell a story.
  - Listen to Tchaikovsky’s *Nutcracker Suite*.

Note: If resources are available, read aloud to students the story behind Tchaikovsky’s *Nutcracker*, and either attend a performance or show scenes from the ballet, which is available on videotape. You may also wish to
introduce students to the Suite from Tchaikovsky’s *Sleeping Beauty*, in relation to the story in Language Arts Grade 1, “Sleeping Beauty.”

**Teachers:** Familiarize students with other types of dance, such as square dancing and tap dancing.

**C. American Musical Traditions**

- **Jazz**
  - Understand that jazz is a kind of music that developed in America, with African and African American roots, and that jazz musicians improvise.
  - Recognize Louis Armstrong as a great early jazz musician. Listen to “What a Wonderful World.”
  - Listen and dance to “Doin’ the Suzie Q” (Lil Hardin Armstrong).

- **Songs**
  **Teachers:** You may also wish to teach students the song “Brother, Come Dance with Me” in connection with their introduction to the opera *Hansel and Gretel*. And you may wish to teach the poem “Thanksgiving Day” (“Over the river and through the wood”) as a song (see Language Arts Grade 1: Poetry).

  “My Country Tis of Thee”
  “Dry Bones”
  “For He’s a Jolly Good Fellow”
  “Frère Jacques”
  “La Raspa”
  “Make New Friends”
  “Michael, Row the Boat Ashore”
  “Oh, Dear, What Can the Matter Be?”
  “On Top of Old Smokey”
  “She’ll Be Comin’ ’Round the Mountain”
  “Skip to My Lou”
  “Take Me Out to the Ball Game”
  “There’s a Hole in the Bucket”
  “When the Saints Go Marching In”
  “Yankee Doodle”
MATHEMATICS

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics has required incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives students a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of higher-order problem-solving skills, it is equally important—indeed, it is a prerequisite to achieving higher-order skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
  - Use addition and subtraction within 20 to solve word problems, with unknowns in all positions, involving situations of
    - adding to
    - taking from
    - putting together
    - taking apart
    - comparing
  - Solve word problems that call for
    - addition of three whole numbers (whose sum is less than or equal to 20)
    - equations with a symbol for the unknown number to represent the problem
- Understand and apply properties of operations and the relationship between addition and subtraction.
  - Apply properties of operations (commutative and associative) as strategies to add and subtract.
  - Understand subtraction as an unknown-addend problem.
- Add and subtract up to 20.
  - Relate counting to addition and subtraction.
  - Add and subtract within 20 using strategies such as counting
on, making ten, decomposing a number to a ten, and creating equivalent known sums.

> Demonstrate fluency for addition and subtraction within 10.

• Work with addition and subtraction equations.
  > Understand the meaning of the equal sign.
  > Determine if equations involving addition and subtraction are true or false.
  > Determine the unknown whole number in an addition or subtraction equation relating three whole numbers.

### Number and Operations in Base Ten

• Extend the counting sequence.
  > Count to 120, starting at any number less than 120.
  > Read and write numerals from 1 to 120.
  > Represent a number of objects with a written numeral.

• Understand place value.
  > Understand that the two digits of a two-digit number represent amounts of tens and ones: 10 as a bundle of ones, the numbers 11–19 are a ten and ones, and multiples of ten refer to the number of tens.
  > Compare two two-digit numbers based on meanings of the tens and ones digits.
    » Record the results of comparisons with the symbols >, =, and <.

• Use place value understanding and properties of operations to add and subtract.
  > Add within 100, including
    » adding a two-digit number and a one-digit number
    » adding a two-digit number and a multiple of 10
    • Relate the strategy to a written method and explain the reasoning used.
    • Understand that in adding two-digit numbers sometimes it is necessary to compose a ten.
  > Given a two-digit number, mentally find 10 more or 10 less than the number.
    » Explain the reasoning used.
  > Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences).
» Use concrete models or drawings and strategies based on
  • place value
  • properties of operations
  • the relationship between addition and subtraction
» Relate the strategy to a written method and explain the reasoning used.

**MEASUREMENT AND DATA**
• Measure lengths indirectly and by iterating length units.
  > Order three objects by length.
  > Compare the lengths of two objects indirectly by using a third object.
  > Express the length of an object as a whole number of length units.
  > Understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps when laid end to end.
• Tell and write time.
  > Tell and write time in hours and half-hours using analog and digital clocks.
• Represent and interpret data.
  > Organize, represent, and interpret data with up to three categories.
    » Ask and answer questions about the total number of data points.

**GEOMETRY**
• Reason with shapes (rectangles, squares, trapezoids, triangles, half-circles, quarter-circles, cubes, right rectangular prisms, right circular cones, and right circular cylinders) and their attributes.
  > Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size).
    » Build and draw shapes to possess defining attributes.
  > Compose two-dimensional and three-dimensional shapes to create a composite shape.
    » Compose new shapes from the composite shape.
  > Partition circles and rectangles into two and four equal shares.
» Describe shares using the words *halves*, *fourths*, and *quarters*.

» Use the phrases *half of*, *fourth of*, and *quarter of*.

» Describe the whole as two of, or four of the shares.

» Understand for these examples that decomposing into more equal shares creates smaller shares.

**SCIENCE**

**Teachers:** Effective instruction in science requires hands-on experience and observation. In the words of the report from the National Academies of Science, *A Framework for K–12 Science Education*, “. . . children have surprisingly sophisticated ways of thinking about the world, based in part on their direct experiences with the physical environment, such as watching objects fall or collide and observing plants and animals. They also learn about the world through everyday activities, such as talking with their families, pursuing hobbies, watching television, and playing with friends. As children try to understand and influence the world around them, they develop ideas about their role in that world and how it works. In fact, the capacity of young children—from all backgrounds and socioeconomic levels—to reason in sophisticated ways is much greater than has long been assumed. Although they may lack deep knowledge and extensive experience, they often engage in a wide range of subtle and complex reasoning about the world. Thus, before they even enter school, children have developed their own ideas about the physical, biological, and social worlds and how they work. By listening to and taking these ideas seriously, educators can build on what children already know and can do.”

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child’s scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child’s development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.

**Sun, Moon, and Stars**
**Shared Knowledge**

**Teachers:** Through reading aloud, observation, and activities such as describing how the moon appears to change at different times of the month, explore the following with students:

**A. The Sun and Its Predictable Patterns**
- The sun is a star.
- Earth gets light and heat (thermal energy) from the sun.
- An Earth day (daytime and night together) is twenty-four hours.
- Sunrise and sunset happen because Earth, which is ball-shaped, rotates.

**B. Annual Patterns of Sunrise and Sunset**
- The times of sunrise and sunset vary a little each day and occur in predictable patterns.

**C. The Moon and Its Predictable Patterns**
- The moon, which is ball-shaped, is visible in the sky at night and often during the day.
- The moon appears to change shape over about a month; these changes are called the moon’s phases (new, crescent, half, full).

**D. Stars and Their Predictable Patterns**
- Stars are distant objects that give off their own light.
- The positions of some stars are used to draw imagined patterns called constellations (Big Dipper, Orion).
- Stars appear to rotate across the sky in the course of a night.

**Plant and Animal Survival**

**Teachers:** Through reading aloud, observation, and activities such as investigating how various animals respond to different stimuli in their environment, help students to explore the following:

**A. Structure and Function in Plants and Animals**
- Plants and animals are composed of parts (structures), which they use in support of their survival.

**B. Information Processing: Plant and Animal Stimulus and Response**
- Animals and plants have parts that enable them to obtain and process information about their environment through their senses.
- Animals and plants respond to environmental inputs (stimuli)
with behaviors that help them survive.

C. Growth and Development
- Adult plants and animals reproduce.
- Many kinds of animal parents take care of their offspring until the offspring become mature enough to care for themselves.

D. Parents and Offspring
- Traits are the characteristics of living things.
- Individuals of the same kind of animal or plant have similar traits, but they can also vary in many ways.

EXPLORING LIGHT AND SOUND
Teachers: The emphasis in Grade 1 should be on observation, description, and explanation of real-world experiences of light and sound, including how they can be used to solve problems; technical explanations of light and sound should be taken up in later grades; see Grades 4, 6, and 8 for an increasingly more detailed study of energy and waves.

A. Sound and Vibration
- Sound comes from sound waves that we detect with our ears.
- To vibrate means to move back and forth quickly. Vibrating matter can make a sound wave that can travel through many kinds of matter.

B. Light
- Light is a phenomenon we detect with our eyes.
- Some objects (the Sun, electric lights) give off light; most objects do not.

C. Light and Materials
- Light interacts differently with different types of materials.
  > Transparent
  > Translucent
  > Opaque
- The dark area created by an object blocking light is a shadow.
- Materials that reflect light may illuminate the surrounding space.

D. Solving Problems with Light or Sound
- People use light and sound in devices to solve problems.
• People use light and sound in a variety of devices to communicate over long distances.

**Simple Machines**

_Teachers:_ The emphasis in Grade 1 should be on observation, description, and explanation of real-world applications of simple machines and how they are placed together to form compound machines; technical explanations of work, power, and force should be taken up in later grades; see Grade 8 for a detailed introduction to physics.

**A. Simple Machines**

• A simple machine is a device that changes the strength or direction of a force (a push or a pull).

• There are six types of simple machines:
  > lever
  > wheel and axel
  > pulley
  > inclined plane
  > wedge
  > screw

• Simple machines make work easier because less force is used.

**B. Compound Machines**

• A compound machine consists of two or more simple machines working together.

• Examples of compound machines:
  > scissors
  > pencil sharpener
  > bicycle
  > wheelbarrow, and many other useful devices

**The Human Body: Human Body Systems**

**A. Skeletal and Muscular Systems**

• The skeletal system is made up of bones that provide structure to the human body and work with muscles to enable movement.

• The muscular system is made up of three types of muscle tissue:
  > cardiac, smooth, skeletal
B. Respiratory and Circulatory Systems
   • The respiratory system performs an exchange of gases between the body and the atmosphere (breathing).
   • The respiratory system interacts with the circulatory system to move matter back and forth between the lungs and cells in the body.
   • The circulatory system is composed of the body’s blood, blood vessels, and heart.

C. Nervous System
   • The nervous system is composed of nerves and the brain.
   • The nervous system interacts with all the body’s other systems and controls all the body’s voluntary and involuntary functions.

D. Taking Care of Your Body
   • Body systems require healthy choices to function properly.
   • Neglecting health can lead to illnesses.

Science Biographies
Teachers: Through reading aloud and activities, explore with students the stories and accomplishments of these scientists and engineers. This list of science biographies is by no means exhaustive. Other individuals can be incorporated into learning during a corresponding topic of study for this grade level, and should include:
   • Galileo—astronomer, physicist, and engineer who observed planetary movement
   • Shi Shen, Gan De, and Wu Xian—Chinese astronomers who developed ancient star charts
   • Jacques Cousteau—explored the oceans, invented equipment for undersea exploration
   • Gordon Gould—physicist who developed the laser
   • Archimedes—Greek mathematician and inventor
The Common Core State Standards for English Language Arts emphasize the critical importance of building nonfiction background knowledge in a coherent and sequenced way within and across grades. This can be accomplished most effectively, at each grade level, by integrating the topics from history, geography, science, and the arts in the Core Knowledge Sequence into the language arts block. Note that in the Sequence, there are many cross-curricular connections to history and science topics within Language Arts (e.g., poems, stories, and sayings), as well as to visual arts and music, which can and should be integrated into the applicable domain of study.

Note: The objectives listed in sections I–IV of Language Arts below are consistent with the Core Knowledge Language Arts program and embed all of the skills and concepts within the Common Core State Standards for English Language Arts.

**Listening and Speaking**

*Teachers:* Traditional language arts instruction has typically accorded little, if any, attention to the ongoing development of children’s listening and speaking ability. This failure to focus on the development of oral language in language arts instruction has been a serious oversight. Literacy, the ability to read and write written language, is highly correlated with students’ oral language proficiency, and the ability to understand a text read aloud is a prerequisite for making sense of the same text in printed form. It is therefore essential that children build listening and speaking competency while also developing reading and writing skills.

**A. Classroom Discussion**

- Maintain attention and actively participate in discussions about a variety of topics, ideas, and texts in both small and large group settings.
- Speak clearly with volume appropriate to the setting.
- Use agreed-upon rules for group discussions, i.e., look at and listen to the speaker, raise hand to speak, take turns, say “excuse me” or “please,” etc.
• Ask questions to clarify conversations, directions, exercises, and/or classroom routines.
• Carry on and participate in a conversation over at least six turns, staying on topic, initiating comments or responding to a partner’s comments, with either an adult or another child of the same age.
• Participate in a conversation or group discussion by making reference to, or building upon, a comment made by another person.
• Identify and express physical sensations, mental states, and emotions of self and others.
• Understand and use language to express spatial and temporal relationships (up, down, first, last, before, after, etc.).
• Understand and use narrative language to describe people, places, things, locations, events, actions.
• Understand and use common sayings and phrases such as “Don’t judge a book by its cover” and “Better late than never.”

B. Presentation of Ideas and Information
• Follow multistep, oral directions.
• Give simple directions.
• Provide simple explanations.
• Recite a nursery rhyme, poem, or song independently, using appropriate eye contact, volume, and clear enunciation.
• Give oral presentations about personal experiences, topics of interest, stories, and summaries of factual information that have been presented orally, visually, or through multimedia, using appropriate eye contact, volume, and clear enunciation.

C. Comprehension and Discussion of Read-Alouds—All Texts
Teachers: Written text makes use of richer vocabulary and more complex syntax than conversational language. It is important that young children be exposed not only to the language of everyday conversation but also to the richer and more formal language of books. This can be done through frequent reading aloud. Helping young children develop the ability to listen to and understand written texts read aloud must be an integral part of any initiative designed to build literacy.

At the second-grade level, students are becoming increasingly skilled as independent readers. Nevertheless, research indicates that reading
comprehension ability does not catch up to listening comprehension until the middle school grades. It is therefore still important to provide second graders with extensive read-aloud experiences of both fiction and nonfiction texts.

Careful consideration should be given to the selection of books read aloud to ensure that the vocabulary and syntax presented is rich and complex. Leveled texts will not provide the rich language experience desired during read-alouds and should only be used as a starting point with students for whom English is a second language.

Nonfiction read-alouds should be selected on the basis of the history, science, music, and visual art topics identified for Grade 2 students in the Core Knowledge Sequence, with emphasis on history and science read-alouds. It is strongly recommended that daily read-alouds focus on a single topic over a sustained period of time—about two weeks—rather than intermingling read-alouds on a variety of subjects. Careful consideration should be given to the order in which nonfiction read-alouds are presented to ensure that knowledge about a topic builds in a progressive and coherent way.

Following any read-aloud, students should participate in rich, structured conversations with an adult in response to the written text that has been read aloud. In this way, they can begin to orally practice comparing, analyzing, and synthesizing ideas in written text in much the same way as they will be expected to do as independent readers in the later grades.

- Listen to and understand a variety of texts read aloud, including fictional stories, fairy tales, fables, historical narratives, drama, informational texts, and poems.
- Distinguish the following genres of literature: fiction, nonfiction, and drama.

**Grasping Specific Details and Key Ideas**

- Describe illustrations.
- Sequence four to six pictures illustrating events in a read aloud.
- Answer questions requiring literal recall and understanding of the details and/or facts of a read-aloud, i.e., who, what, where, when, etc.
- Retell key details.
- Summarize in one’s own words selected parts of a read-aloud.
- Ask questions to clarify information in a read-aloud.
- Use narrative language to describe people, places, things, locations, events, actions, a scene, or facts in a read-aloud.
Observing Craft and Structure

- Understand and use words and phrases heard in read-alouds.
- Compare and contrast similarities and differences within a single read-aloud or between two or more read-alouds.
- Make personal connections to events or experiences in a read-aloud and/or make connections among several read-alouds.

Integrating Information and Evaluating Evidence

- Prior to listening to a read-aloud, identify what they know and have learned that may be related to the specific story or topic to be read aloud.
- Use pictures accompanying the read-aloud to check and support understanding of the read-aloud.
- Make predictions prior to and during a read-aloud, based on the title, pictures, and/or text heard thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is heard in a read-aloud, including answering “why” questions that require recognizing cause/effect relationships.
- Interpret information that is presented orally and then ask additional questions to clarify information or the topic in the read-aloud.
- Identify who is telling a story or providing information in a text.

D. Comprehension and Discussion of Read-Alouds—Fiction, Drama, and Poetry

- Retell a story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence.
- Compare and contrast characters from different stories.
- Describe characters in increasing depth by referring to their dialogue and/or actions in the story.
- Change some story events and provide a different story ending.
- Create and tell an original story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
• Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
• Identify repetitions in phrases, refrains, or sounds in poems or songs.
• Identify sensory language and how it is used to describe people, objects, places, and events.
• Describe the use of rhyme, rhythm, and sensory images used in poetry.

E. Comprehension and Discussion of Read-Alouds—Nonfiction and Informational Texts

Teachers: Select nonfiction read-aloud topics from the second-grade history, science, music, and visual arts topics, with emphasis on history and science.
• Generate questions and seek information from multiple sources to answer questions.
• Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions.
• With assistance, categorize and organize facts and information within a given topic.
• With assistance, create and interpret timelines and lifelines related to read-alouds.
• Interpret information presented in diagrams, charts, graphs, etc.
• Distinguish read-alouds that describe events that happened long ago from those that describe contemporary or current events.

Reading

A. Phonics: Decoding and Encoding

Teachers: Learning to read requires understanding and mastering the written English code through explicit and systematic phonics instruction. Research suggests that phonics instruction is most effective when specific letter-sound relationships are taught and reinforced by having students both read and write the letter-sound correspondence being studied. Reading and writing—decoding and encoding—are complementary processes that ensure mastery of the written code.
• Demonstrate understanding that a systematic, predictable relationship exists between written letters (graphemes) and spoken sounds (phonemes).
• Blend individual phonemes to pronounce printed words.
• Understand that sometimes two or more printed letters stand for a single sound.
• Read multisyllable words containing any of the grapheme-phoneme correspondences listed below.
• Read and write words with inflectional endings, i.e., -s, -ed, -ing, -er, -est.
• Read, understand, and write contractions, i.e., isn’t, I’m, can’t, etc.
• Sort and classify words according to the spelling used to represent a specific phoneme.
• Read tricky spellings that can be sounded two ways, e.g., the letter s sounded /s/ as in cats and /z/ as in dogs.
• Read and spell chains of one-syllable words in which one sound is added, substituted, or omitted, i.e., read at > cat > bat > bad > bid.
• Read at least one hundred words generally identified as high frequency words.

Consonant Sounds and Spellings Taught in Second Grade

/b/ spelled ‘b’ as in boy, ‘bb’, as in tubby
/d/ spelled ‘d’ as in dog, ‘dd’ as in madder, ‘ed’ as in filled
/f/ spelled ‘f’ as in fun, ‘ff’ as in stuff
/g/ spelled ‘g’ as in get, ‘gg’ as in egg
/h/ spelled ‘h’ as in him
/j/ spelled ‘j’ as in jump, ‘g’ as in gem, ‘ge’ as in fringe
/k/ spelled ‘c’ as in cat, ‘k’ as in kitten, ‘ck’ as in sick, ‘cc’ as in moccasin
/l/ spelled ‘l’ as in lip, ‘ll’ as in sell
/m/ spelled ‘m’ as in mad, ‘mm’ as in hammer
/n/ spelled ‘n’ as in net, ‘nn’ as in funny, ‘kn’ as in knock
/p/ spelled ‘p’ as in pet, ‘pp’ as in happy
/r/ spelled ‘r’ as in red, ‘rr’ as in earring, ‘wr’ as in wrist
/s/ spelled ‘s’ as in sit, ‘ss’ as in dress, ‘c’ as in cent, ‘ce’ as in prince, ‘se’ as in rinse
/t/ spelled ‘t’ as in top, ‘tt’ as in butter, ‘ed’ as in asked
/v/ spelled ‘v’ as in vet, ‘ve’ as in twelve
/w/ spelled ‘w’ as in wet, ‘wh’ as in when

/x/ spelled ‘x’ as in tax

/y/ spelled ‘y’ as in yes

/z/ spelled ‘z’ as in zip, ‘zz’ as in buzz, ‘s’ as in dogs

/ch/ spelled ‘ch’ as in chop, ‘tch’ as in itch

/sh/ spelled ‘sh’ as in ship

/th/ spelled ‘th’ as in thin

/q/ spelled ‘qu’ as in quick

/ng/ spelled ‘ng’ as in sing, ‘n’ as in pink

**Vowel Sounds and Spellings Taught in Second Grade**

/a/ spelled ‘a’ as in cat

/e/ spelled ‘e’ as in get, ‘ea’ as in head

/i/ spelled ‘i’ as in hit, ‘y’ as in myth

/o/ spelled ‘o’ as in hot, ‘a’ as in wall

/u/ spelled ‘u’ as in but, ‘o’ as in son

/æ/ spelled ‘a_e’ as in cake, ‘ai’ as in wait, ‘ay’ as in day, ‘a’ as in paper, ‘ey’ as in hey, ‘ei’ as in weight, ‘ea’ as in great

/ee/ spelled ‘ee’ as in bee, ‘e’ as in me, ‘y’ as in funny, ‘ea’ as in beach, ‘e_e’ as in Pete, ‘ie’ as in cookie, ‘i’ as in ski, ‘ey’ as in key

/ie/ spelled ‘i_e’ as in bike, ‘i’ as in biting, ‘y’ as in try, ‘ie’ as in tie, ‘igh’ as in night

/øe/ spelled ‘o_e’ as in note, ‘oa’ as in boat, ‘oe’ as in toe, ‘o’ as in open, ‘ow’ as in snow

/ue/ spelled ‘u_e’ as in cute, ‘u’ as in unit, ‘ue’ as in cue

/aw/ spelled ‘aw’ as in paw, ‘au’ as in Paul, ‘augh’ as in caught, ‘ough’ as in bought

/oo/ spelled ‘oo’ as in look, ‘u’ as in student, ‘ue’ as in blue, ‘ui’ as in fruit, ‘ew’ as in new, ‘u_e’ as in tune

/oo/ spelled ‘oo’ as in soon

/ou/ spelled ‘ou’ as in shout, ‘ow’ as in now

/oi/ spelled ‘oi’ as in oil, ‘oy’ as in toy

/er/ spelled ‘er’ as in her, ‘ur’ as in hurt, ‘ir’ as in bird, ‘ar’ as in dollar

/ar/ spelled ‘ar’ as in car

/or/ spelled ‘or’ as in for, ‘ore’ as in more, ‘our’ as in four, ‘oor’ as in door

Schwa spelled ‘a’ as in about

/shun/ spelled ‘tion’ as in mention
B. Oral Reading and Fluency

- Read decodable stories that incorporate the specific code knowledge that has been taught.
- Demonstrate increased accuracy, fluency, and expression on successive reading of a decodable text (90 wpm by the end of the year).
- Use phonics skills in conjunction with context to confirm or self-correct word recognition and understanding, rereading as necessary.
- Demonstrate understanding of and use commas and end punctuation while reading orally.
- Read aloud, alone, or with a partner at least 20 minutes each day.

C. Reading Comprehension—All Texts

**Teachers:** At the second-grade level, students should be demonstrating ever-increasing code knowledge and fluency in their independent reading, allowing them to focus more intently on the meaning of what they are reading. This increased focus on reading comprehension is reflected in the number and complexity of the objectives below, as compared to earlier grades. However, it is important to remember that listening comprehension still far exceeds reading comprehension and that students’ ability to talk about what they have heard and/or read will exceed their ability to demonstrate that understanding in writing.

- Demonstrate understanding of text—the majority of which is decodable—after independent reading.

**Grasping Specific Details and Key Ideas**

- Sequence four to six pictures illustrating events from a text that has been read independently.
- Answer questions requiring literal recall and understanding of the details and/or facts (i.e., who, what, where, when, etc.) about a text that has been read independently.
- Retell key details from a text that has been read independently.
- Summarize in one’s own words selected parts of a text.
- Ask questions to clarify information about a text that has been read independently.
- Use narrative language to describe people, places, things, locations,
events, actions, a scene, or facts from a text that has been read independently.

**Observing Craft and Structure**
- Identify basic text features and what they mean, including title, table of contents, chapter headings, and captions.
- Understand and use words and phrases from a text that has been read independently.
- Compare and contrast similarities and differences within a single text or between multiple texts read independently.
- Make personal connections to events or experiences in a text that has been read independently and/or make connections among several texts that have been read independently.

**Integrating Information and Evaluating Evidence**
- Prior to reading, identify what they know and have learned that may be related to the specific story or topic to be read.
- Use pictures accompanying the written text to check and support understanding.
- Make predictions prior to and while reading, based on the title, pictures, and/or text read thus far and then compare the actual outcomes to predictions.
- Answer questions that require making interpretations, judgments, or giving opinions about what is read independently, including answering “why” questions that require recognizing cause/effect relationships.
- Interpret information that is read independently and then ask questions to clarify this information.
- Identify who is telling a story or providing information in a text.
- Identify temporal words that link and sequence events, i.e., *first, next, then, etc.*
- Identify words that link ideas, i.e., *for example, also, in addition.*

**D. Reading Comprehension—Fiction, Drama, and Poetry**
- Retell a story, using narrative language to describe characters, setting(s), and the plot of the story in proper sequence.
- Compare and contrast characters from different stories.
- Describe characters in increasing depth by referring to dialogue and/or their actions in the story.
- Change some story events and provide a different story ending.
- Distinguish fantasy from realistic text in a story.
- Identify the moral or lesson of a fable, folktale, or myth.
- Demonstrate understanding of literary language (e.g., author, illustrator, characters, setting, plot, dialogue, personification, simile, and metaphor) and use some of these terms in retelling stories or creating their own stories.
- Identify sensory language and how it is used to describe people, objects, places, and events.
- Identify repetitions in phrases, refrains, or sounds in poems or songs.
- Describe the use of rhyme, rhythm, and sensory images used in poetry.

E. Reading Comprehension—Nonfiction and Informational Texts

Teachers: Select nonfiction topics from the second-grade history, science, music, and visual arts topics, with emphasis on history and science.

- Generate questions and seek information from multiple sources to answer questions.
- Answer questions about the details of a nonfiction text, indicating which part of the text provided the information needed to answer specific questions.
- Interpret information presented in diagrams, charts, graphs, etc.
- With assistance, categorize and organize facts and information for a given topic.
- With assistance, create and interpret timelines and lifelines related to texts read independently.
- Distinguish texts that describe events that happened long ago from texts that describe contemporary or current events.

WRITING

Teachers: Students develop ever increasing code knowledge and fluency in reading during second grade and, as a result, most will also become increasingly comfortable and competent in expressing their thoughts and ideas in writing.

Teachers should, however, have age-appropriate expectations about what second-grade student writing should resemble. Students’ spelling skills will often lag behind the code knowledge they demonstrate in reading.
It is reasonable to expect students to use the letter-sound correspondences they have learned thus far to set down plausible spellings for the sounds in the word. For example, a student who writes *doller* for *dollar* or *wate* for *wait* or *weight* has set down a plausible spelling for each sound in the word, using the code knowledge taught in this grade. This should be seen as acceptable spelling for this stage of literacy acquisition. With continued writing practice, students should begin to include more dictionary-correct spellings for words that they read and write frequently. Dictionary-correct spelling as the rule will be a realistic goal when students have learned more spellings, have had repeated writing practice opportunities, and have learned how to use a dictionary to check spelling.

At the second-grade level, teachers should model and scaffold use of a writing process, such as “Plan-Draft-Edit,” as students learn to write in various genres. It is important, though, not to dampen student enthusiasm for writing by rigidly insisting that all student writing be edited over and over again to bring the text to the “publication” stage. A sensible balance that encourages students to use their current skill knowledge when writing, as well as a simple editing rubric for review—without stifling creative expression—is optimal at the second-grade level.

**Writing to Reflect Audience, Purpose, and Task**

- Add details to writing.
- Begin to use tools, including technology, to plan, draft, and edit writing.

**Conducting Research**

- Gather information from experiences or provided text sources.

**A. Narrative Writing**

- Write a familiar story that includes setting(s), character(s), dialogue, and if appropriate, several events, using temporal words and phrases to indicate the chronology of events.
- Write a personal narrative.
- Create a title and an ending that are relevant to the narrative.

**B. Informative/Explanatory Writing**

- Write about a topic, including a beginning and ending sentence, facts and examples, relevant to the topic, and specific steps (if writing explanatory text).
• Group similar information into paragraphs.
• Use linking words such as also, another, and, etc. to connect ideas within a paragraph.

C. Persuasive Writing (Opinion)
• Express an opinion or point of view in writing, providing reasons and supporting details for preference or opinion.
• Use words to link opinions with reasons or supporting details, such as because, also, another.
• Create a title that is relevant to the topic or subject of the text.
• If writing about a specific book or read-aloud, refer to the content of the text.

LANGUAGE CONVENTIONS
• Form sentences and paragraphs to communicate thoughts and ideas.
• Apply basic spelling conventions.
• Use basic capitalization and punctuation in sentences to convey meaning.

A. Spelling
• Write phonemically plausible spellings for words using current code knowledge, e.g., write doller for dollar, wate for wait or weight.
• Write words, phrases, and sentences from dictation, applying phonics knowledge.
• Alphabetize words to the second letter.
• Use a children’s dictionary, with assistance, to check spelling and verify the meaning of words.
• Identify and use synonyms, antonyms, homophones, and compound words.

B. Parts of Speech and Sentence Structure
• Recognize, identify, and use subject, object, and possessive pronouns, i.e., I, me, my, they, them, orally, in written text, and in own writing.
• Recognize, identify, and use correct noun-pronoun agreement orally, in written text, and in own writing.
• Recognize, identify, and use common and proper nouns, orally, in written text, and in own writing.
• Recognize, identify, and use the articles *a* and *an* appropriately orally, in written text, and in own writing.

• Recognize, identify, and use selected regular and irregular plural nouns orally, in written text, and in own writing.

• Recognize, identify, and use selected regular and irregular past, present, and future tense verbs orally, in written text, and in own writing.

• Recognize, identify, and use adjectives orally, in written text, and in own writing.

• Recognize, identify, and use adverbs orally, in written text, and in own writing.

• Recognize, identify, and use subjects and predicates, orally, in written text, and in own writing.

• Recognize, identify, and use statements, questions, and exclamations orally, in written text, and in own writing.

• Recognize, identify, and use complete simple and compound sentences.

C. **Capitalization and Punctuation**

• Capitalize the first word in a sentence, the pronoun *I*, and proper nouns (names and places), months, days of the week, titles of people, and addresses.

• Recognize, identify, and use abbreviations with correct punctuation for the months, days of the week, titles of people, and addresses.

• Identify and use end punctuation, including periods, question marks, and exclamation points.

• Use commas appropriately in greetings and closings of letters, dates, items in a series, and addresses.

• Write a simple friendly letter.

• Use apostrophes to create contractions and indicate possession, i.e., cat’s meow.

• Use quotation marks appropriately to designate direct speech.

**Poetry**

*Note:* The poems listed here constitute a selected core of poetry for this grade. You are encouraged to expose students to more poetry, old and new, and to have students write their own poems. To bring students into the spirit of poetry, read it aloud and encourage them to read it aloud so they can experience the music in the words.
“Bed in Summer” (Robert Louis Stevenson)
“Bee! I’m expecting you” (Emily Dickinson)
“Buffalo Dusk” (Carl Sandburg)
“Caterpillars” (Aileen Fisher)
“Discovery” (Harry Behn)
“Harriet Tubman” (Eloise Greenfield)
“Hurt No Living Thing” (Christina Rossetti)
“Lincoln” (Nancy Byrd Turner)
“The Night Before Christmas” (Clement Clarke Moore)
“Rudolph Is Tired of the City” (Gwendolyn Brooks)
“Seashell” (Federico Garcia Lorca)
“Smart” (Shel Silverstein)
“Something Told the Wild Geese” (Rachel Field)
“There Was an Old Man with a Beard” (Edward Lear)
“Who Has Seen the Wind?” (Christina Rossetti)
“Windy Nights” (Robert Louis Stevenson)

**Fiction**

**Note:** Review Drama from Grade 1, and engage students in dramatic activities, possibly with one of the stories below in the form of a play.

**Teachers:** The titles listed below are available in a variety of editions, including both adaptations for novice readers and others that lend themselves to reading aloud to children—for example, *Charlotte’s Web* or “How the Camel Got His Hump.” It is recommended that you provide a mixture of texts. Editions designed for beginning readers can help students practice decoding skills. Read-aloud texts, which the students may not be capable of reading on their own, can be understood when the words are read aloud and talked about with a helpful adult. Such active listening to vocabulary and syntax that go beyond the limits of grade-level readability formulas is an important part of developing an increasingly sophisticated verbal sense.

The titles below constitute a core of stories for this grade. Expose students to many more stories, including classic picture books, read-aloud books, etc. (In schools, teachers across grade levels should communicate their choices in order to avoid undue repetition.) Students should also be exposed to nonfiction prose—biographies, books on science and history, books on art and music—and they should be given opportunities to tell and write their own stories.
A. Stories

Note: “The Magic Paintbrush” is also known as “Tye May and the Magic Brush” and “Liang [or Ma Liang] and the Magic Brush.” See also World History Grade 2: India, re “The Blind Men and the Elephant” and “The Tiger, the Brahman, and the Jackal.”

“Beauty and the Beast”
“The Blind Men and the Elephant” (a fable from India)
A Christmas Carol (Charles Dickens)
Charlotte’s Web (E. B. White)
“The Emperor’s New Clothes” (Hans Christian Andersen)
“The Fisherman and His Wife” (Brothers Grimm)
“How the Camel Got His Hump” (a “Just-So” story by Rudyard Kipling)
Iktomi stories (legends of the Plains Indian trickster figure, such as “Iktomi Lost His Eyes”; “Iktomi and the Berries”; “Iktomi and the Boulder”)
“The Magic Paintbrush” (a Chinese folktale)
“El Pajaro Cu” (a Hispanic folktale)
selections from Peter Pan (James M. Barrie)
“Talk” (a West African folktale)
“The Tiger, the Brahman, and the Jackal” (a folktale from India)
“The Tongue-Cut Sparrow” (a folktale from Japan)

B. Mythology of Ancient Greece

Teachers: See World History and Geography 2: The Ancient Greek Civilization.

Note: Roman names are listed in parentheses because, although students do not study ancient Rome until third grade, in the Core Knowledge Sequence, you are likely to encounter both Greek and Roman names in various books of myths you may use.

- **Gods of Ancient Greece (and Rome)**
  - Zeus (Jupiter)
  - Hera (Juno)
  - Apollo (Apollo)
  - Artemis (Diana)
  - Poseidon (Neptune)
  - Aphrodite (Venus)
  - Demeter (Ceres)
  - Ares (Mars)
Early Grades from the Core Knowledge Sequence

- Hermes (Mercury)
- Athena (Minerva)
- Hephaestus (Vulcan)
- Dionysus (Bacchus)
- Eros (Cupid)
- Hades (Pluto)

- Mount Olympus: home of the gods
- Mythological creatures and characters
  - Atlas (holding the world on his shoulders)
  - centaurs
  - Cerberus
  - Pegasus
  - Pan
- Greek myths
  - “Prometheus” (how he brought fire from the gods to men)
  - “Pandora’s Box”
  - “Oedipus and the Sphinx”
  - “Theseus and the Minotaur”
  - “Daedelus and Icarus”
  - “Arachne the Weaver”
  - “Swift-footed Atalanta”
  - “Demeter and Persephone”
  - Hercules (Heracles) and the “Labors of Hercules”

Note: Students will read more myths in third grade; see Language Arts Grade 3.

C. American Folk Heroes and Tall Tales

Teachers: Johnny Appleseed and Casey Jones were introduced in kindergarten.

Note: See also Music Grade 2: III. Songs, “John Henry.”

- Paul Bunyan
- Johnny Appleseed
- John Henry
- Pecos Bill
- Casey Jones

D. Literary Terms
**Teachers:** In the course of their studies, students should learn the following terms:

- myth
- tall tale
- limerick

**Sayings and Phrases**

**Teachers:** Every culture has phrases and proverbs that make no sense when carried over literally into another culture. For many students, this section may not be needed; they will have picked up these sayings by hearing them at home and among friends. But the sayings have been one of the categories most appreciated by teachers who work with students from home cultures that differ from the standard culture of literate American English.

- Back to the drawing board
- Better late than never
- Cold feet
- Don’t cry over spilled milk.
- Don’t judge a book by its cover.
- Easier said than done
- Eaten out of house and home
- Get a taste of your own medicine.
- Get up on the wrong side of the bed.
- In hot water
- Keep your fingers crossed.
- Practice what you preach.
- The real McCoy
- Two heads are better than one.
- Turn over a new leaf.
- Where there’s a will there’s a way.
- You can’t teach an old dog new tricks.

**History and Geography**

**Teachers:** In second grade, students often study aspects of the world around them: the family, the school, the community, etc. The following guidelines are meant to broaden and complement that focus. The goal of studying selected topics in world history in second grade is to foster
curiosity and the beginnings of understanding about the larger world outside the student’s locality, and about varied civilizations and ways of life. This can be done through a variety of means: story, drama, art, music, discussion, and more.

The study of geography embraces many topics throughout the Core Knowledge Sequence, including topics in history and science. Geographic knowledge includes a spatial sense of the world, an awareness of the physical processes that shape life, a sense of the interactions between humans and their environment, an understanding of the relations between place and culture, and an awareness of the characteristics of specific regions and cultures.

It is important that students learn about the people who shaped our world, as well as those who continue to do so. Thus, it is recommended that students listen to a variety of biographies. Engaging students in read-alouds about the individuals listed in the Sequence, and others, enables them to draw from a broader perspective.

**World History and Geography**

**Note:** See also below, American History and Geography: Geography of the Americas.

**Note:** The Southern Ocean is the newest named ocean basin. It is recognized by the U.S. Board on Geographic Names as the body of water extending from the coast of Antarctica to the line of latitude at 60 degrees South.

**Geography**

A. **Spatial Sense (Working with Maps, Globes, and Other Geographic Tools)**

**Teachers:** Review and reinforce topics from Grade 1, including: Name your continent, country, state, and community.

- Understand that maps have keys or legends with symbols and their uses. Find directions on a map: east, west, north, south. Identify major oceans: Pacific, Atlantic, Indian, Arctic, Southern.
- Review the seven continents: Asia, Europe, Africa, North America, South America, Antarctica, Australia.
- Locate Canada, the United States, Mexico, Central America, South America.
- Locate the equator, Northern Hemisphere and Southern Hemisphere, North and South Poles.
B. Geographical Terms and Features

Teachers: Review terms from Grade 1 (peninsula, harbor, bay, island, ocean, sea), and add:
- coast, valley, prairie, desert, oasis

Early Asian Civilizations

Teachers: Since religion is a shaping force in the story of civilization, the Core Knowledge Sequence introduces students in the early grades to major world religions, beginning with a focus on geography and major symbols and figures. The purpose is not to explore matters of theology but to provide a basic vocabulary for understanding many events and ideas in history. The goal is to familiarize, not proselytize; to be descriptive, not prescriptive. The tone should be one of respect and balance: no religion should be disparaged by implying that it is a thing of the past. To the question, “Which one is true?” an appropriate response is “People of different faiths believe different things to be true. The best people to guide you on this right now are your parents or someone at home.”

A. Geography of Asia
- The largest continent, with the most populous countries in the world
- Locate China, India, Japan, Pakistan.

B. India

Note: See also Language Arts Grade 2: “The Tiger, the Brahman, and the Jackal,” and “The Blind Men and the Elephant,” re India.
- Indus River and Ganges River
- Farming methods, organized settlements, written language made up of symbols
- Hinduism
  > Brahma, Vishnu, Shiva, Agni
  > Many holy books, including the Rig Veda
  > Diwali—Hindu Festival of Light
- Buddhism
  > Prince Siddhartha becomes Buddha, “the Enlightened One.”
  > Buddhism begins as an outgrowth of Hinduism in India, and then spreads through many countries in Asia.
  > King Asoka (also spelled Ashoka)
Early Grades from the Core Knowledge Sequence

Note: See also Visual Arts Grade 2: Architecture: Great Stupa, re Buddhism.

C. China

Teachers: Students will study China again in Grade 4. Second-grade teachers should examine the fourth-grade guidelines to see how these topics build in the later grade.

Note: See also Language Arts Grade 2: “The Magic Paintbrush.”

- Yellow (Huang He) and Yangtze (Chang Jiang) Rivers
- Farming methods, organized settlements, written language made up of symbols
- Inventions of paper and fireworks
- Chinese written language (possibly oldest written language still used today)
- Teachings of Confucius (for example, honor your ancestors)
- Great Wall of China
- Invention of paper
- Importance of silk
- Chinese New Year

Modern Japanese Civilization

A. Geography

Note: Students will study feudal Japan in Grade 5.

Note: See also Language Arts Grade 2: “The Tongue-Cut Sparrow”; Visual Arts Grade 2: Elements of Art: Hokusai, The Great Wave; and, Architecture: The Katsura Palace.

- Locate relative to continental Asia: “land of the rising sun.”
- A country made up of islands; four major islands
- Pacific Ocean, Sea of Japan (East Sea)
- Mt. Fuji
- Tokyo

B. Culture

- Japanese flag
- Big modern cities, centers of industry and business
- Traditional craft: origami
- Traditional costume: kimono
- Tea ceremony
The Ancient Greek Civilization

Teachers: Students will study Greece again in Grade 6, with a focus on the legacy of ideas from ancient Greece and Rome.

Note: See also Language Arts Grade 2: Greek Myths; Visual Arts Grade 2: Sculpture, Discus Thrower; Architecture, The Parthenon.

Note: Suggested topics for learning about Alexander the Great include his tutoring by Aristotle, his horse Bucephalus, and the legend of the Gordian knot.

- Geography: Mediterranean Sea and Aegean Sea, Crete
- Athens and Sparta as a city-state: the beginnings of democracy
- Persian Wars: Marathon and Thermopylae
- Olympic Games
- Mount Olympus, worship of gods and goddesses
- Great thinkers: Socrates, Plato, and Aristotle
- Alexander the Great

American History and Geography

Teachers: The study of American history begins in grades K–2 with a brief overview of major events and figures, from the earliest days to recent times. A more in-depth, chronological study of American history begins again in Grade 3 and continues onward. The term “American” here generally, but not always, refers to the lands that became the United States. Other topics regarding North, Central, and South America may be found in the World History and Geography sections of this Sequence.

American Government: The Constitution

Teachers: Through analogies to familiar settings—the family, the school, the community—discuss some basic questions regarding American government, such as “What is government?” or “What are some basic functions of American government?” (Making and enforcing laws; settling disputes; protecting rights and liberties, etc.) Only basic questions need to be addressed at this grade level. In fourth grade, students will examine in more detail specific issues and institutions of American government, including, for example, the separation of powers, and the relation between state and federal government.

- American government is based on the Constitution, the highest law of our land.
Early Grades from the Core Knowledge Sequence

- James Madison, the “Father of the Constitution”
- Government by the consent of the governed: “We the people”

**The War of 1812**
- President James Madison and Dolley Madison
- British impressment of American sailors
- Old Ironsides
- Charles Ball, and other former slaves, who choose to fight the British in exchange for the promise of freedom
- British burn the White House.
- Fort McHenry, Francis Scott Key, and “The Star-Spangled Banner”
- Battle of New Orleans, Andrew Jackson

**Westward Expansion**

*Teachers:* Students will study Westward Expansion in greater depth and detail in Grade 5. Second-grade teachers should examine the fifth-grade guidelines to see how these topics build in the later grade. It is recommended that second-grade teachers keep their focus on the people and events specified here, and leave for fifth grade the figures and ideas specified for that grade.

**A. Pioneers Head West**
- New means of travel
  > Robert Fulton, invention of the steamboat
  > Erie Canal
  > Railroads: the Transcontinental Railroad
- Routes west: wagon trains on the Oregon Trail, the Wilderness Road
- California Gold Rush
- The Pony Express

**B. Native Americans**
- Sequoyah and the Cherokee alphabet
- Forced removal to reservations: the “Trail of Tears”
- Some Native Americans displaced from their homes and ways of life by railroads (the “iron horse”).
- Effect of near extermination of bison on Plains Indigenous People
THE CIVIL WAR

Teachers: Students will study the Civil War in greater depth and detail in Grade 5. Second-grade teachers should examine the fifth-grade guidelines to see how these topics build in the later grade.

- Controversy over enslaved workers
- Plantations, plantation crops
- Harriet Tubman, the Underground Railroad
- Fort Sumter
- Northern vs. Southern states: Yankees and Rebels
- Ulysses S. Grant and Robert E. Lee
- Clara Barton, “Angel of the Battlefield,” founder of American Red Cross
- President Abraham Lincoln: keeping the Union together
- Appomattox Court House
- Emancipation Proclamation and the end of slavery

IMMIGRATION AND CITIZENSHIP

Teachers: Students will study Immigration and Urbanization in greater depth and detail in Grade 6. Second-grade teachers should examine the sixth-grade American History guidelines to see how these topics build in the later grade. In second grade, it is recommended that teachers use narrative, biography, and other accessible means to introduce students to the idea that many people have come to America (and continue to come here) from all around the world for many reasons: to find freedom, to seek a better life, to leave behind bad conditions in their native lands, etc. Discuss the following questions with students: What is an immigrant? Why do people leave their home countries to make a new home in America? What is it like to be a newcomer in America? What hardships have immigrants faced? What opportunities have they found?

- America perceived as a “land of opportunity”
- The meaning of “e pluribus unum” (a national motto you can see on the back of coins)
- Ellis Island and the significance of the Statue of Liberty
- Millions of newcomers to America
  > Large populations of immigrants settle in major cities (such as New York, Chicago, Philadelphia, Detroit, Cleveland, Boston, San Francisco)
The idea of citizenship: What it means to be a citizen of a nation
   > American citizens have certain rights and responsibilities (for example, voting, eligible to hold public office, paying taxes).
   > Becoming an American citizen (by birth, naturalization)

Note: In Grade 4, students will study, in the historical context of antebellum reform, early pioneers in the women's movement in America, including Elizabeth Cady Stanton, Lucretia Mott, Margaret Fuller, and Sojourner Truth.

Note: Students will study the modern American civil rights movement in more depth and detail in the middle school grades.

**Fighting for a Cause**

Teachers: Through narrative, biography, and other accessible means, introduce students to the idea that while America is a country founded upon “the proposition that all men are created equal,” equality has not always been granted to all Americans. Many people, however, have dedicated themselves to the struggle to extend equal rights to all Americans. Specific figures and issues to study include:

- Susan B. Anthony and the right to vote
- Eleanor Roosevelt and civil rights and human rights
- Mary McLeod Bethune and educational opportunity
- Ruby Bridges and equitable access in public school education
- Jackie Robinson and the integration of major league baseball
- Rosa Parks and the bus boycott in Montgomery, Alabama
- Martin Luther King Jr. and the dream of equal rights for all
- Cesar Chavez and the rights of migrant workers
- Chief Standing Bear and the rights of Native Americans
- Sylvia Mendez and American civil rights

Note: Chief Standing Bear was the first Native American to speak before a Federal Court. He spoke out against the removal of his people from their land.

**Geography of the Americas**

A. North America

- North America: Canada, the United States, Mexico
- The United States
  > Fifty states: Forty-eight contiguous states, plus Alaska and Hawaii
> Current territories (American Samoa, Guam, Puerto Rico, and US Virgin Islands)
> Mississippi River
> Appalachian and Rocky Mountains
> Great Lakes
> Atlantic and Pacific Oceans, Gulf of Mexico, Caribbean Sea, West Indies
> Central America

B. South America

- Brazil: largest country in South America, Amazon River, rain forests
- Peru and Chile: Andes Mountains
- Locate Venezuela, Colombia, Ecuador
- Bolivia: named after Simon Bolivar, “The Liberator”
- Argentina: the Pampas
- Main languages: Spanish and (in Brazil) Portuguese

Symbols and Figures

- Recognize and become familiar with the significance of
  > US flag: current and earlier versions
  > Statue of Liberty
  > Lincoln Memorial

Visual Arts

Teachers: In schools, lessons on the visual arts should illustrate important elements of making and appreciating art, and emphasize important artists, works of art, and artistic concepts. When appropriate, topics in the visual arts may be linked to topics in other disciplines. The following guidelines specify a variety of artwork in different media and from various cultures in order to expose students to a wide range of art and artists. While the list is robust, it may require teachers to narrow the selection in order to adequately address the works and related skills within an academic year.

Elements of Art

Teachers: The generally recognized elements of art include line, shape, form, space, light, texture, and color. In second grade, continue when appropriate to discuss qualities of line, shape, color, and texture that students learned about in kindergarten and first grade.
Note: See also World History Grade 2: Japan, re Hokusai

- Recognize lines as horizontal, vertical, or diagonal.
- Observe the use of implied line/movement in
  - Katsusika Hokusai, *The Great Wave at Kanagawa*
  - Pablo Picasso, *Mother and Child*

**Sculpture**

- Observe shape, mass, and line in sculptures, including
  - Myron of Athens, *Discus Thrower*
  - (Ancient China) *Flying Horse, One Leg Resting on a Swallow*
  - Auguste Rodin, *The Thinker*

Note: See also World History Grade 2: The Ancient Greek Civilization, re *The Discus Thrower*; and China, re *Flying Horse.*

**Landscape**

Teachers: Briefly review from Grade 1: portrait, self-portrait, and still life. In discussing the following works, ask the students about their first impressions—what they notice first, and what the picture makes them think of or feel. Go on to discuss lines, shapes, colors, and textures; details not obvious at first; why they think the artist chose to depict things in a certain way, etc.

- Recognize as landscapes and discuss
  - Thomas Cole, *View from Mount Holyoke, Northampton, Massachusetts after a Thunderstorm-The Oxbow*
  - El Greco, *View of Toledo*
  - Henri Rousseau, *Virgin Forest at Sunset*
  - Van Gogh, *The Starry Night*
  - Clementine Hunter, *Murals*, (1955)
Shared Knowledge

> Julie Mehretu, *Fever graph (algorithm for serendipity)* (2013)

**Abstraction**

*Note:* You may wish to recall from kindergarten, Joan Miró, *People and Dog in the Sun.*

- Compare lifelike and abstract animals, including
  > Albrecht Dürer, *Young Hare*
  > Paul Klee, *Cat and Bird*
  > Pablo Picasso, *Bull's Head*
  > Elaine Marie de Kooning, *Baseball Players*
  > Henri Matisse, *The Snail*
  > John James Audubon, *Passenger Pigeon*

- Observe and discuss examples of abstract painting and sculpture, including
  > Marc Chagall, *I and the Village*
  > Constantin Brancusi, *Bird in Space*

**Architecture**

*Note:* See also World History Grade 2: The Ancient Greek Civilization, re the Parthenon; India, re the Great Stupa; Japan, re the Katsura Palace.

- Understand architecture as the art of designing buildings.
- Understand symmetry and a line of symmetry, and observe symmetry in the design of some buildings (such as the Parthenon).
  > Symmetry versus asymmetry (comparing the Parthenon to the Katsura Palace)
- Interior space versus exterior (comparing the Great Mosque to the Lakshmana Temple).
- Noting line, shape, and special features (such as columns and domes), look at
  > The Parthenon
  > Great Stupa (Buddhist temple in Sanchi, India)
  > The Baths of Diocletian
  > The Great Mosque of Cordoba
  > The Lakshmana Temple, Khajuraho
  > The Katsura Palace

*Note:* Also known as the Katsura Imperial Villa or Katsura Detached
Palace. Call attention to the inspiration of Asian Gardens and the shift from symmetry to asymmetry that occurred at the time in the nineteenth-century European architecture in the Gothic Revival (see Grade 6). The way space is organized inspired twentieth-century architects (see Frank Lloyd Wright in Grade 7).

**MUSIC**

**Teachers:** In schools, lessons on music should feature activities and works that illustrate important musical concepts and terms, and should introduce important composers and works. When appropriate, topics in music may be linked to topics in other disciplines.

The following guidelines focus on content, not performance skills, though many concepts are best learned through active practice (singing, clapping rhythms, playing instruments, etc.).

**Elements of Music**

- Through participation, become familiar with basic elements of music (rhythm, melody, harmony, form, timbre, etc.).
  > Recognize a steady beat, accents, and the downbeat; play a steady beat.
  > Move responsively to music (marching, walking, hopping, swaying, etc.).
  > Recognize short and long sounds.
  > Discriminate between fast and slow; gradually slowing down and getting faster.
  > Discriminate between differences in pitch: high and low.
  > Discriminate between loud and soft; gradually increasing and decreasing volume.
  > Understand that melody can move up and down.
  > Hum the melody while listening to music.
  > Echo short rhythms and melodic patterns.
  > Engage in improvisation activities (e.g., *Bum, Bum, Bum Here We Come*).
  > Participate in call-and-response activities (e.g., *My Aunt Came Back, Oh Won’t You Sit Down*?).
  > Participate in simple rounds (e.g., *Canoe Song*).
  > Sing Partner Songs (e.g., *This Old Man, Michael Finnegan*).
> **Shared Knowledge**

> Dance and echo rhythm (e.g., *Miss Mary Mack, Alabama Gal*).
> Play simple rhythms and melodies.
> Recognize like and unlike phrases.
> Recognize timbre (tone color).
> Sing unaccompanied, accompanied, and in unison.
> Recognize verse and refrain.
> Recognize that musical notes have names.
> Recognize a scale as a series of notes.
> Sing the C major scale using “do re mi,” etc.

> **Recognize (aurally) the following frequently used Italian terms:**
  > **Review**
  > » *adagio* (slow)
  > » *moderato* (medium)
  > » *allegro* (fast)
  > **Introduce**
  > » *piano* (soft)
  > » *forte* (loud)

> **Understand the following notation:**
  > * staff, ✓ treble clef, names of lines and spaces in the treble clef
  > ✔ whole note, † half note, ‡ quarter note, § eighth note
  > ‰ quarter rest, ○ eight rest
  > * piano  † forte

**Listening and Understanding**

**Teachers:** Expose students to a wide range of music, including children’s music, popular instrumental music, and music from various cultures.

**A. The Orchestra**

**Note:** In third grade, students will take a closer look at the brass and woodwind families.

- Review families of instruments: strings, brass, woodwinds, percussion.
- Become familiar with instruments in the string family—violin, viola, cello, double bass—and listen to
  - Camille Saint-Saëns, from *Carnival of the Animals*: “The Swan”
(cello) and “Elephants” (double bass)

> Antonio Vivaldi, *The Four Seasons* (see below, Composers and Their Music)

- Become familiar with instruments in the percussion family—for example, drums (timpani, snare), xylophone, wood block, maracas, cymbals, triangle, tambourine—and listen to
  > Evelyn Glennie, *A Little Prayer*
  > Abing (Hua Yanjun), *The Moon’s Reflection on the Second Spring*
  > Heitor Villa-Lobos, *O Polichinelo*

**B. Keyboard Instruments**

**Note:** See also below, Composers and Their Music, Bach, “Toccata and Fugue in D minor” (organ).

- Recognize that the piano and organ are keyboard instruments, and listen to a variety of keyboard music, including
  > Wolfgang Amadeus Mozart, “Rondo Alla Turca” from *Piano Sonata* K. 331
  > Ludwig van Beethoven, “Für Elise”
  > Felix Mendelssohn, from *Songs without Words*, “Spring Song”
  > Fanny Mendelssohn, “piano trio in d minor, op. 11”

**C. Composers and Their Music**

**Teachers:** Provide brief, child-friendly biographical profiles of the following composers, and listen to representative works.

- Antonio Vivaldi, *The Four Seasons*
- Johann Sebastian Bach, *Minuet in G major* (collected by Bach in the *Anna Magdalena Notebook*); *Jesu, Joy of Man’s Desiring; Toccata and Fugue in D minor*
- Ludwig van Beethoven, *Symphony No. 6* ("Pastoral"): first movement and from final movement, “Thunderstorm” to end of symphony

**Songs**

**Note:** See also Language Arts Grade 2: American Tall Tales, re “Casey Jones,” and “John Henry.”

**Note:** See also American History Grade 2: Civil War, re “Follow the
Drinking Gourd,” and “When Johnny Comes Marching Home.”

Note: See also American History Grade 2: War of 1812, re “The Star-Spangled Banner.”

“Casey Jones” (chorus only)
“Do-Re-Mi”
“The Erie Canal”
“Follow the Drinking Gourd”
“Good Bye Old Paint”
“Home on the Range”
“John Henry”
“Old Dan Tucker”
“The Star-Spangled Banner”
“Swing Low, Sweet Chariot”
“This Land Is Your Land”
“When Johnny Comes Marching Home”
“If You Miss Me From the Back of the Bus”
“De Colores”
“Jambo Bwana”
“Song of the Volga Boatmen”

MATHEMATICS

Teachers: Mathematics has its own vocabulary and patterns of thinking. It is a discipline with its own language and conventions. Thus, while some lessons may offer occasional opportunities for linking mathematics to other disciplines, it is critically important to attend to math as math. From the earliest years, mathematics has required incremental review and steady practice: not only the diligent effort required to master basic facts and operations, but also thoughtful and varied practice that approaches problems from a variety of angles, and gives students a variety of opportunities to apply the same concept or operation in different types of situations. While it is important to work toward the development of higher-order problem-solving skills, it is equally important—indeed, it is a prerequisite to achieving higher-order skills—to have a sound grasp of basic facts, and an automatic fluency with fundamental operations.

Operations and Algebraic Thinking

- Represent and solve problems involving addition and subtraction.
Early Grades from the Core Knowledge Sequence

> Use addition and subtraction within 100 to solve one- and two-step word problems.
  » Solve word problems that involve situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions.
  » Use equations with a symbol for the unknown number to represent the problem.

- Add and subtract within 20.
  > Fluently add and subtract within 20 using mental strategies.

- Work with equal groups of objects to gain foundations for multiplication.
  > Determine whether a group of objects (up to 20) has an odd or even number of members.
    » Write an equation to express an even number as a sum of two equal addends.
  > Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns.
    » Write an equation to express the total as a sum of equal addends.

Note: By end of Grade 2, know from memory all sums of two one-digit numbers.

Number and Operations in Base Ten

- Understand place value.
  > Understand that the three digits of a three-digit number represent amounts of hundreds, tens, and ones.
    » Count within 1,000.
    » Skip-count by 5s, 10s, and 100s.
  > Read and write numbers to 1,000, using
    » base-ten numerals
    » number names
    » expanded form
  > Compare two three-digit numbers based on meanings of the hundreds, tens, and ones digits.
    » Use >, =, and < symbols to record the results of comparisons.

- Use place value understanding and properties of operations to add and subtract.
Shared Knowledge

> Fluently add and subtract within 100.
  » Use strategies based on
    • place value
    • properties of operations
    • relationship between addition and subtraction

> Add up to four two-digit numbers.
  » Use strategies based on
    • place value
    • properties of operations

> Add and subtract within 1,000.
  » Understand that when adding or subtracting three-digit numbers sometimes it is necessary to compose or decompose tens or hundreds.
  » Use concrete models or drawings and strategies based on
    • place value
    • properties of operations
    • relationship between addition and subtraction
  • Relate the applied strategy to a written method.

> Mentally add 10 or 100 to a given number 100–900.
> Mentally subtract 10 or 100 from a given number 100–900.
> Explain why addition and subtraction strategies work.
  » Use place value and the properties of operations.

Measurement and Data

• Measure and estimate lengths in standard units.
  > Measure the length of an object by selecting and using appropriate tools, such as
    » rulers
    » yardsticks
    » meter sticks
    » measuring tape
  > Measure the length of an object twice, using length units of different lengths for the two measurements.
    » Describe how the two measurements relate to the size of the unit chosen.
  > Estimate lengths, using
    » units of inches
Early Grades from the Core Knowledge Sequence

- Measure to determine how much longer one object is than another.
  - Express the length difference in terms of a standard length unit.

- Relate addition and subtraction to length.
  - Use addition and subtraction within 100 to solve word problems involving lengths (same units).
  - Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, etc.
  - Represent whole-number sums and differences within 100 on a number line diagram.

- Work with time and money.
  - Tell and write time from analog and digital clocks to the nearest five minutes, using a.m. and p.m.
  - Solve word problems involving money.
    - Solve problems that include the following forms of currency:
      - dollar bills
      - quarters
      - dimes
      - nickels
      - pennies
  - Use $ and ¢ symbols appropriately.

- Represent and interpret data.
  - Generate measurement data by measuring lengths of several objects to the nearest whole unit.
    - Make repeated measurements of the same object.
  - Show the measurements by making a line plot.
  - Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories.
  - Solve simple put together, take apart, and compare problems using information presented in a bar graph.
GEOMETRY
• Reason with shapes and their attributes.
  > Recognize and draw shapes having specified attributes, such as
    » a given number of angles
    » a given number of equal faces
  > Identify triangles, quadrilaterals, pentagons, hexagons, and cubes.
  > Partition a rectangle into rows and columns of same-size squares.
    » Count to find the total number.
  > Partition circles and rectangles into two, three, or four equal shares.
    » Describe shares using the words halves, thirds, half of, a third of, etc.
    » Describe the whole as two halves, three thirds, four fourths.
    » Recognize that equal shares of identical wholes need not have the same shape.

SCIENCE

Teachers: Effective instruction in science requires hands-on experience and observation. In the words of the report from the National Academies of Science, A Framework for K–12 Science Education, “... children have surprisingly sophisticated ways of thinking about the world, based in part on their direct experiences with the physical environment, such as watching objects fall or collide and observing plants and animals. They also learn about the world through everyday activities, such as talking with their families, pursuing hobbies, watching television, and playing with friends. As children try to understand and influence the world around them, they develop ideas about their role in that world and how it works. In fact, the capacity of young children—from all backgrounds and socioeconomic levels—to reason in sophisticated ways is much greater than has long been assumed. Although they may lack deep knowledge and extensive experience, they often engage in a wide range of subtle and complex reasoning about the world. Thus, before they even enter school, children have developed their own ideas about the physical, biological, and social worlds and how they work. By listening to and
taking these ideas seriously, educators can build on what children already know and can do.”

While experience counts for much, book learning is also important, for it helps bring coherence and order to a child’s scientific knowledge. Only when topics are presented systematically and clearly can children make steady and secure progress in their scientific learning. The child's development of scientific knowledge and understanding is in some ways a very disorderly and complex process, different for each child. But a systematic approach to the exploration of science, one that combines experience with book learning, can help provide essential building blocks for deeper understanding at a later time.

**Properties of Matter**

*Teachers:* Through reading aloud, observation, and activities such as describing and sorting different kinds of matter, explore the following with students:

A. **Introduction to Matter**
   - Matter is anything that has mass and takes up space.
   - There are many types of matter.
     > solid, liquid, gas

B. **Properties and Uses of Matter**
   - Matter has properties that can be measured.
     > size, weight, volume
   - Matter can be sorted, or classified, by properties.

C. **Heating and Cooling Matter**
   - The state of matter depends on temperature.
   - Heating or cooling a substance can change its properties.
     > Water has three states: liquid, solid (ice), and gas (water vapor).

D. **Building with Matter**
   - Some objects are made from a single type of matter.
   - Other objects are made from different types of matter being combined or placed together.

**Organisms and Their Habitats**

*Teachers:* Through reading aloud, observation, and activities such as investigating differences in the variety of plants and animals in different environments, help students to explore the following:
Note: Review and extend learning from Kindergarten, Needs of Plants and Animals.

A. Plant Needs
- Plants have body parts (roots, stems, leaves) to survive and grow.
- Plants are living organisms and typically grow in fixed locations.
- Though there are many different types of plants, they have common needs (air, water, minerals, light).

B. Plant Diversity
- Plants are diverse in size, structure, and ecological needs.
- Plants live in environments to which they are suited; those environments also differ.
  > Deciduous forests (oak trees)
  > Tropical forests (vines, epiphytes)
  > Meadows and prairies (grasses)
  > Deserts (cacti)
  > Tundra (plants of small size)
  > Ponds, lakes, rivers, and streams
  > Oceans are home to less than a dozen known species of plants.
- Many plant habitats change in cycles over time—seasons—and plants are adapted to survive during those changes.

C. Animal Needs
- Adult plants and animals reproduce.
- Many kinds of animal parents take care of their offspring until the offspring become mature enough to care for themselves.

D. Animal Diversity
- Animals are diverse in size, shape, and ecological needs.
- Animals vary in their structure.
  > Invertebrates: without backbones (snails, insects, coral)
  > Vertebrates: with backbones (mammals, birds, fish, reptiles, and amphibians)
- Animals live in environments to which they are suited; those environments differ.
  > Deciduous forests (squirrels, raccoons)
  > Tropical forests (moles, worms)
>  Meadows and prairies (prairie dogs)
>  Deserts (lizards, scorpions)
>  Tundra (arctic fox, polar bears)
>  Ponds, lakes, rivers, and streams (fish, oysters)
>  Oceans (There are numerous species of animals in the world’s oceans such as sea stars and whales.)

E. **Ecosystems: Plant and Animal Relationships**
- Many plants and animals live in a specific habitat.
- Organisms that share a given space affect each other.
  > Animals depend on plants for food and shelter.
  > Plants depend on animals (for example, pollination, seed dispersal).
- There are also groups of living things that are neither plants nor animals (fungi, algae, bacteria).

**Exploring Land and Water**

Teachers: Through reading aloud, observation, and activities such as developing models of the shapes and kinds of land and water in an area, help students to explore the following:

A. **Landforms**
- Earth’s surface has various landforms, such as
  > plains, hills, plateaus, mountains, valleys, canyons, buttes, basins, cliffs, beaches, dunes, underwater mountains and valleys
- Maps are models of Earth’s surface.
  > A globe is a spherical map of Earth that helps to visualize locations of continents, the poles, and the equator.

B. **Earth’s Water**
- Most of Earth’s surface is covered with water.
- Most of Earth’s water is liquid; some is solid (ice); some is fresh water (rivers, lakes, groundwater, glaciers); most is salt water (ocean).

C. **Effects of Wind and Water on Land**
- Wind and water can change the shape of land.
- Wind and water produce many distinctive landforms.
> dunes, beaches, cliffs, hoodoos, arches, oxbows and meanders, canyons, mesas

- Wind and water cause relatively slow changes to Earth’s crust.
- Scientists and engineers work together to design solutions that slow or prevent unwanted weathering and erosion.

**Electricity and Magnetism**

*Note:* Collaborate with your fourth-grade colleagues regarding future expectations and definitions of energy, transfer, and the transformation of energy (Grade 4, Energy Transfer and Transformation).

*Teachers:* The emphasis in Grade 2 should be on observation, description, and explanation of real-world applications of electricity and magnetism; technical explanations of electromagnetism should be taken up in later grades; see Grades 4, 5, 6, and 8 for an increasingly detailed study of energy, electricity, and magnetism.

Students should also engage with the engineering design process and its relationship to scientific knowledge. Contextualized design challenges should be embedded across multiple topics of study such as this domain, including in the later grades; for example, see Grades 3, 4, and 5 for an increasingly detailed study of engineering design. At this grade level, explore the following with students:

**A. Electricity**

- Electricity is a form of energy; it can cause changes.
- Matter contains two types of electrical charges: positive and negative.
- Types of electricity:
  > Static electricity: electric charges on the surface of things
  > Current electricity: electrical charges flowing in a circuit through wires and other devices

**B. Magnets and Magnetism**

- Magnet: a metal object that can exert a force through a distance on certain types of metal objects.
- A magnet has two poles: north and south.
- Similar magnetic poles attract each other; opposite magnetic poles repel each other.
C. Designing and Engineering Useful Devices
   • Electricity and magnetism are used in many useful devices.
   • All useful devices are developed through engineering design, a process which includes:
     > Defining a problem
     > Developing possible solutions
     > Refining (optimizing) the design solution
   • Scientists and engineering designers often work together in teams to solve problems and design effective solutions.

D. Safe Use of Electricity and Magnetism
   • Electricity is potentially dangerous.
   • Safety rules for electricity include
     > never put your finger or anything metallic in an electrical outlet.
     > never touch a switch or electrical appliance when your hand or body is wet.
     > never put your finger in a lamp socket.

THE HUMAN BODY: CELLS AND DIGESTION
A. Cells, Tissues, and Organs
   • All living things are made up of cells too small to be seen without a microscope.
   • The human body is made up of different types of cells, including stem, bone, blood, muscle, fat, skin, nerve.
   • Cells combine to form tissues.
   • Tissues combine to form organs.
   • Organs combine to form organ systems.

Note: Emphasis at this grade is to introduce the hierarchy of structures in the body.

B. Digestive and Excretory Systems
   • The human body has complex systems, including the digestive and excretory systems.
   • The digestive system includes body parts that take in and process food (salivary glands, taste buds, teeth, esophagus, stomach, liver, small intestine, large intestine).
• The excretory system includes those body parts that eliminate some kinds of wastes (kidneys, bladder, urethra).

**Note:** Review and extend learning from Kindergarten and Grade 1, Our Five Senses and Human Body Systems

C. **Taking Care of Your Body**

• A healthy lifestyle involves performing certain behaviors and avoiding other behaviors.
• The body needs specific foods, vitamins, and minerals in certain quantities to function properly.
• Organizations make recommendations about what nutrients people need to stay healthy.
• Vaccinations can help protect health.

**Science Biographies**

**Teachers:** Through reading aloud and activities, explore with students the stories and accomplishments of these scientists and engineers. This list of science biographies is by no means exhaustive. Other individuals can be incorporated into learning during a corresponding topic of study for this grade level, and should include:

• Dmitri Mendeleev—developed the periodic table
• John James Audubon—artist specializing in American birds
• Marie Tharp—pioneer in mapping the ocean floor
• Louis Pasteur—explored bacteria and the safety of foods
Notes


4. “You don't believe in a God, so you begin to believe that man is a god. You don't believe in Heaven, so you begin to believe in a heaven on earth. In other words, you get romanticism. The concepts that are right and proper in their own sphere are spread over, and so mess up, falsify and blur the clear outlines of human experience. It is like pouring a pot of treacle over the dinner table. Romanticism then, and this is the best definition I can give of it, is spilt religion.” T. E. Hulme, *Speculations*, 1924


6. https://www.youtube.com/watch?v=HY2i7ESX0X4

7. Data culled from the New York State Education Department at https://data.nysed.gov/

8. See: https://thesocietypages.org/socimages/2014/05/13/how-well-do-teen-test-scores-predict-adult-income/


15. Gellner, *Nations and Nationalism*


20. Ibid.


22. James Kim, et al. (2022)


25. Wiegand, Wayne A. American Public School Librarianship: A History. Baltimore: Johns Hopkins University Press, 2021. p.145, in Goodman’s introduction to an excellent piece on readability by Elfrieda Hiebert in (2014). In K. Goodman, R.C. Calfee, & Y. Goodman (Eds.), Whose knowledge counts in government literacy policies? Why expertise matters (pp. 144-160). New York, NY: Routledge. `Goodman turned out to be wrong about “whole language” pedagogy, but firmly right about “readability.” “If readability formulas were reliable, different formulas measuring the same text would all give similar grade levels. But that's not what happens. For example, the SMOG Index typically scores at least two grade levels higher than the


27. Kim, et al.

28. Ibid.


30. Ibid.


33. What looks like and is irresponsibility on the part of districts and states in this abandonment of oversight can be understood even if not approved by the reader. They were following the incorrect principle that is a focus of this book's message: That we have been schooling our children under the deeply mistaken concept that there exist general all-purpose thinking skills and general all-purpose reading skills. Every time this deeply incorrect idea is put forward, it’s our duty for the sake of the nation to challenge it. Perhaps by quietly asking if any reputable psychologist holds the view. Any that did would soon not be a reputable psychologist. See: Van Horn, M.L., Karlin, E. O. Ramey, S.L., Aldridge, J., Snyder, S. W. “Effects of Developmentally Appropriate Practices on Children's Development: A Review of Research and Discussion of Methodological and Analytic Issues,” *The Elementary School Journal*, v.105, No.4, 2005.

34. Alan Bailin and Anne Grafstein, *Readability* (Palgrave Macmillan, 2016)


41. HyeJin Hwang, Kristen L. McMaster, Panayiota Kendeou, “A Longitudinal Investigation of Directional Relations Between Domain Knowledge and Reading in the Elementary Years” *Reading Research Quarterly*, Vol 58, #1, 2023

42. https://www.youtube.com/watch?v=opXKmwg8VQM

43. Hayes, et al.

44. Hegel later remarked about philosophy and religion: “Philosophy has no other object but God and so is essentially rational theology.” Hegel’s *Aesthetics*, 2 volumes, tr. T.M. Knox 1979, Vol I, p.101. Quoted from the excellent Hegel entry in the *Stanford Encyclopedia of Philosophy*. I also wish to record my debt to the late Professor George Schrader of the Yale Philosophy Department, whose graduate course in Hegel’s *Phenomenology* I was lucky enough to experience.
E. D. Hirsch, Jr., is a member of the American Academy of Arts and Sciences and founder of the nonprofit Core Knowledge Foundation, an organization with over five thousand Core Knowledge schools in all fifty states and abroad. He is author of numerous books, including the best-sellers *Cultural Literacy* and *The Dictionary of Cultural Literacy*. Other books by Hirsch on education are *A First Dictionary of Cultural Literacy; the Core Knowledge Sequence, What Your [First Through Sixth] Grader Needs to Know; The Schools We Need and Why We Don't Have Them, The Making of Americans,* and *How to Educate a Citizen*. These works have influenced educational thought and practice in the United States and other countries. He received the QuEST award of the American Federation of Teachers, and the Conant Award for “Outstanding Contributions to American Education,” awarded by the Education Commission of the States.
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Thirty-six years after writing the surprise best-seller *Cultural Literacy*, E. D. Hirsch, Jr. can observe a growing determination among schools to teach their children the background knowledge necessary for high literacy. In this book, the term “Cultural Literacy” is re-labeled shared “Background Knowledge” (SBK) which is the term used in cognitive psychology. It is a more descriptive and neutral term. This silently shared topic knowledge is essential to people’s understanding of one another in speech and writing at any level. That scientific insight is gaining ground in our top education schools and among forward-looking teachers and principals. More than five thousand public and charter schools use Core Knowledge instructional materials based on that science. More than 2,600,000 American elementary students are the beneficiaries! Those elementary materials can be downloaded gratis from the Core Knowledge Foundation. In this book, Hirsch argues persuasively that shared background knowledge is the foundation of our national unity and literacy—a premise that needs to gain acceptance in all our schools if we are to climb out of our disunity and credulity. According to the Program for International Student Assessment (PISA), our children’s current educational level is ranked as twenty-fifth among the nations.