



# **Grades 6-8 Text Exemplars**

## **Informational Sample Texts**

From the Common Core Standards Appendix B pdf

[http://www.corestandards.org/assets/Appendix\\_B.pdf](http://www.corestandards.org/assets/Appendix_B.pdf)

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- Students *analyze* Walt Whitman’s “O Captain! My Captain!” to uncover the poem’s *analogies* and *allusions*. They *analyze the impact of specific word choices* by Whitman, such as *rack* and *grim*, and *determine* how they contribute to the overall *meaning and tone* of the poem. [RL.8.4]
- Students *analyze how* the opening *stanza* of Robert Frost’s “The Road Not Taken” *structures* the rhythm and meter for the poem and how the *themes* introduced by the speaker *develop* over the course of *the text*. [RL.6.5]

## Informational Texts: English Language Arts

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**Adams, John. “Letter on Thomas Jefferson.” *Adams on Adams*. Edited by Paul M. Zall. Lexington: University Press of Kentucky, 2004. (1776)  
From Chapter 6: “Declaring Independence 1775-1776”**

Mr. Jefferson came into Congress, in June, 1775, and brought with him a reputation for literature, science, science, and a happy talent of composition. Writings of his were handed about, remarkable for the peculiar felicity of expression. Though a silent member in Congress, he was so prompt, frank, explicit, and decisive upon committees and in conversation, not even Samuel Adams was more so, that he soon seized upon my heart; and upon this occasion I gave him my vote, and did all in my power to procure the votes of others. I think he had one more vote than any other, and that placed him at the head of the committee. I had the next highest number, and that placed me second. The committee met, discussed the subject, and then appointed Mr. Jefferson and me to make the draught, I suppose because we were the two first on the list.

The subcommittee met. Jefferson proposed to me to make the draft. I said, ‘I will not.’

‘You should do it.’

‘Oh! no.’

‘Why will you not? You ought to do it.’

‘I will not.’

‘Why?’

‘Reasons enough.’

‘What can be your reasons?’

‘Reason first, you are a Virginian, and a Virginian ought to appear at the head of this business. Reason second, I am obnoxious, suspected, and unpopular. You are very much otherwise. Reason third, you can write ten times better than I can.’

‘Well,’ said Jefferson, ‘if you are decided, I will do as well as I can.’

‘Very well. When you have drawn it up, we will have a meeting.’

### *Media Text*

*Adams Family Papers: An Electronic Archive, hosted by the Massachusetts Historical Society, includes transcriptions of letters between John and Abigail Adams as well as John Adams’s diary and autobiography: <http://www.masshist.org/digitaladams/aea/index.html>*

**Douglass, Frederick. *Narrative of the Life of Frederick Douglass an American Slave, Written by Himself*. Boston: Anti-Slavery Office, 1845. (1845)**

The plan which I adopted, and the one by which I was most successful, was that of making friends of all the little white boys whom I met in the street. As many of these as I could, I converted into teachers. With their kindly aid, obtained at different times and in different places, I finally succeeded in learning to read. When I was sent of errands, I always took my book with me, and by going one part of my errand quickly, I found time to get a lesson before my

return. I used also to carry bread with me, enough of which was always in the house, and to which I was always welcome; for I was much better off in this regard than many of the poor white children in our neighborhood. This bread I used to bestow upon the hungry little urchins, who, in return, would give me that more valuable bread of knowledge. I am strongly tempted to give the names of two or three of those little boys, as a testimonial of the gratitude and affection I bear them; but prudence forbids;—not that it would injure me, but it might embarrass them; for it is almost an unpardonable offence to teach slaves to read in this Christian country. It is enough to say of the dear little fellows, that they lived on Philpot Street, very near Durgin and Bailey’s ship-yard. I used to talk this matter of slavery over with them. I would sometimes say to them, I wished I could be as free as they would be when they got to be men. “You will be free as soon as you are twenty-one, but I am a slave for life! Have not I as good a right to be free as you have?” These words used to trouble them; they would express for me the liveliest sympathy, and console me with the hope that something would occur by which I might be free.

I was now about twelve years old, and the thought of being a slave for life began to bear heavily upon my heart. Just about this time, I got hold of a book entitled “The Columbian Orator.” Every opportunity I got, I used to read this book. Among much of other interesting matter, I found in it a dialogue between a master and his slave. The slave was represented as having run away from his master three times. The dialogue represented the conversation which took place between them, when the slave was retaken the third time. In this dialogue, the whole argument in behalf of slavery was brought forward by the master, all of which was disposed of by the slave. The slave was made to say some very smart as well as impressive things in reply to his master—things which had the desired though unexpected effect; for the conversation resulted in the voluntary emancipation of the slave on the part of the master.

In the same book, I met with one of Sheridan’s mighty speeches on and in behalf of Catholic emancipation. These were choice documents to me. I read them over and over again with unabated interest. They gave tongue to interesting thoughts of my own soul, which had frequently flashed through my mind, and died away for want of utterance. The moral which I gained from the dialogue was the power of truth over the conscience of even a slaveholder. What I got from Sheridan was a bold denunciation of slavery, and a powerful vindication of human rights. The reading of these documents enabled me to utter my thoughts, and to meet the arguments brought forward to sustain slavery; but while they relieved me of one difficulty, they brought on another even more painful than the one of which I was relieved. The more I read, the more I was led to abhor and detest my enslavers. I could regard them in no other light than a band of successful robbers, who had left their homes, and gone to Africa, and stolen us from our homes, and in a strange land reduced us to slavery. I loathed them as being the meanest as well as the most wicked of men. As I read and contemplated the subject, behold! that very discontentment which Master Hugh had predicted would follow my learning to read had already come, to torment and sting my soul to unutterable anguish. As I writhed under it, I would at times feel that learning to read had been a curse rather than a blessing. It had given me a view of my wretched condition, without the remedy. It opened my eyes to the horrible pit, but to no ladder upon which to get out. In moments of agony, I envied my fellow-slaves for their stupidity. I have often wished myself a beast. I preferred the condition of the meanest reptile to my own. Any thing, no matter what, to get rid of thinking! It was this everlasting thinking of my condition that tormented me. There was no getting rid of it. It was pressed upon me by every object within sight or hearing, animate or inanimate. The silver trump of freedom had roused my soul to eternal wakefulness. Freedom now appeared, to disappear no more forever. It was heard in every sound, and seen in every thing. It was ever present to torment me with a sense of my wretched condition. I saw nothing without seeing it, I heard nothing without hearing it, and felt nothing without feeling it. It looked from every star, it smiled in every calm, breathed in every wind, and moved in every storm.

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**Churchill, Winston. “Blood, Toil, Tears and Sweat: Address to Parliament on May 13th, 1940.” *Lend Me Your Ears: Great Speeches in History, 3rd Edition*. Edited by William Safire. New York: W. W. Norton, 2004. (1940)  
From “Winston Churchill Braces Britons to Their Task”**

I say to the House as I said to ministers who have joined this government, I have nothing to offer but blood, toil, tears, and sweat. We have before us an ordeal of the most grievous kind. We have before us many, many months of struggle and suffering.

You ask, what is our policy? I say it is to wage war by land, sea, and air. War with all our might and with all the strength God has given us, and to wage war against a monstrous tyranny never surpassed in the dark and lamentable catalogue of human crime. That is our policy.

You ask, what is our aim? I can answer in one word. It is victory. Victory at all costs - Victory in spite of all terrors - Victory, however long and hard the road may be, for without victory there is no survival.

I take up my task in buoyancy and hope. I feel sure that our cause will not be suffered to fail among men. I feel entitled at this juncture, at this time, to claim the aid of all and to say, “Come then, let us go forward together with our united strength.”

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**Petry, Ann. *Harriet Tubman: Conductor on the Underground Railroad*. New York: HarperCollins, 1983. (1955)  
From Chapter 3: “Six Years Old”**

By the time Harriet Ross was six years old, she had unconsciously absorbed many kinds of knowledge, almost with the air she breathed. She could not, for example, have said how or at what moment she knew that she was a slave.

She knew that her brothers and sisters, her father and mother, and all the other people who lived in the quarter, men, women and children were slaves.

She had been taught to say, “Yes, Missus,” “No, Missus,” to white women, “Yes, Mas'r,” “No, Mas'r” to white men. Or, “Yes, sah,” “No, sah.”

At the same time someone had taught her where to look for the North Star, the star that stayed constant, not rising in the east and setting in the west as the other stars appeared to do; and told her that anyone walking toward the North could use that star as a guide.

She knew about fear, too. Sometimes at night, or during the day, she heard the furious galloping of horses, not just one horse, several horses, thud of the hoofbeats along the road, jingle of harness. She saw the grown folks freeze into stillness, not moving, scarcely breathing, while they listened. She could not remember who first told her that those furious hoofbeats meant that patrollers were going in pursuit of a runaway. Only the slaves said patterollers, whispering the word.

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**Steinbeck, John. *Travels with Charley: In Search of America*. New York: Penguin, 1997. (1962)  
From pages 27–28**

I soon discovered that if a wayfaring stranger wishes to eavesdrop on a local population the places for him to slip in and hold his peace are bars and churches. But some New England towns don't have bars, and church is only on Sunday. A good alternative is the roadside restaurant where men gather for breakfast before going to work or going hunting. To find these places inhabited one must get up very early. And there is a drawback even to this. Early-rising men not only do not talk much to strangers, they barely talk to one another. Breakfast conversation is limited to a series of laconic grunts. The natural New England taciturnity reaches its glorious perfection at breakfast.

[...]

I am not normally a breakfast eater, but here I had to be or I wouldn't see anybody unless I stopped for gas. At the first lighted roadside restaurant I pulled in and took my seat at a counter. The customers were folded over their coffee cups like ferns. A normal conversation is as follows:

WAITRESS: “Same?”

CUSTOMER: “Yep.”

WAITRESS: “Cold enough for you?”

CUSTOMER: “Yep.”

(Ten minutes.)

WAITRESS: “Refill?”

CUSTOMER: “Yep.”

This is a really talkative customer.

### Sample Performance Tasks for Informational Texts: English Language Arts

- Students *determine* the *point of view* of John Adams in his “Letter on Thomas Jefferson” and *analyze how* he *distinguishes* his position *from* an alternative approach articulated by Thomas Jefferson. [RI.7.6]

- Students *provide an objective summary* of Frederick Douglass’s Narrative. They *analyze* how *the central idea* regarding the evils of slavery is *conveyed through supporting ideas* and *developed over the course of the text*. [RI.8.2]
- Students *trace* the line of *argument* in Winston Churchill’s “Blood, Toil, Tears and Sweat” address to Parliament and *evaluate* his *specific claims* and opinions *in the text*, *distinguishing* which *claims* are *supported by facts, reasons, and evidence*, and which *are not*. [RI.6.8]
- Students *analyze in detail* how the early years of Harriet Tubman (as related by author Ann Petry) contributed to her later becoming a conductor on the Underground Railroad, attending to how the author *introduces, illustrates, and elaborates* upon the events in Tubman’s life. [RI.6.3]
- Students *determine* the *figurative and connotative meanings* of words such as *wayfaring, laconic, and taciturnity* as well as of *phrases* such as *hold his peace* in John Steinbeck’s *Travels with Charley: In Search of America*. They *analyze* how Steinbeck’s *specific word choices* and diction impact the *meaning and tone* of his writing and the characterization of the individuals and places he describes. [RI.7.4]

## Informational Texts: History/Social Studies

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### United States. Preamble and First Amendment to the United States Constitution. (1787, 1791)

#### Preamble

We, the People of the United States, in Order to form a more perfect Union, establish Justice, insure domestic Tranquility, provide for the common defence, promote the general Welfare, and secure the Blessings of Liberty to ourselves and our Posterity, do ordain and establish this Constitution of the United States of America.

#### Amendment I

Congress shall make no law respecting the establishment of religion, or prohibiting the free exercise thereof; or abridging the freedom of speech, or of the press; or the right of people peaceably to assemble, and to petition the Government for a redress of grievances.

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### Lord, Walter. *A Night to Remember*. New York: Henry Holt, 1955. (1955)

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#### Isaacson, Phillip. *A Short Walk through the Pyramids and through the World of Art*. New York: Knopf, 1993. (1993) From Chapter 1

At Giza, a few miles north of Saqqara, sit three great pyramids, each named for the king – or Pharaoh – during whose reign it was built. No other buildings are so well known, yet the first sight of them sitting in their field is breathtaking. When you walk among them, you walk in a place made for giants. They seem too large to have been made by human beings, too perfect to have been formed by nature, and when the sun is overhead, not solid enough to be attached to the sand. In the minutes before sunrise, they are the color of faded roses, and when the last rays of the desert sun touch them, they turn to amber. But whatever the light, their broad proportions, the beauty of the limestone, and the care with which it is fitted into place create three unforgettable works of art.

What do we learn about art when we look at the pyramids?

First, when all of the things that go into a work – its components – complement one another, they create an object that has a certain spirit, and we can call that spirit harmony. The pyramids are harmonious because limestone, a warm, quiet material, is a cordial companion for a simple, logical, pleasing shape. In fact, the stone and the shape are so comfortable with each other that the pyramids seem inevitable – as though they were bound to have the form, color, and texture that they do have.

*From A SHORT WALK AROUND THE PYRAMIDS & THROUGH THE WORLD OF ART by Philip M. Isaacson, copyright © 1993 by Philip M. Isaacson. Used by permission of Alfred A. Knopf, an imprint of Random House Children’s Books, a division of Random House, Inc. All rights reserved. Any additional use of this text, such as for classroom use or curriculum development, requires independent permission from Random House, Inc.*

*Media Text*

*National Geographic mini-site on the pyramids, which includes diagrams, pictures, and a time line:*  
<http://www.nationalgeographic.com/pyramids/pyramids.html>

**Murphy, Jim. *The Great Fire*. New York: Scholastic, 1995. (1995)**  
**From Chapter 1: “A City Ready to Burn”**

Chicago in 1871 was a city ready to burn. The city boasted having 59,500 buildings, many of them—such as the Court-house and the Tribune Building—large and ornately decorated. The trouble was that about two-thirds of all these structures were made entirely of wood. Many of the remaining buildings (even the ones proclaimed to be “fireproof”) looked solid, but were actually jerrybuilt affairs; the stone or brick exteriors hid wooden frames and floors, all topped with highly flammable tar or shingle roofs. It was also a common practice to disguise wood as another kind of building material. The fancy exterior decorations on just about every building were carved from wood, then painted to look like stone or marble. Most churches had steeples that appeared to be solid from the street, but a closer inspection would reveal a wooden framework covered with cleverly painted copper or tin.

The situation was worst in the middle-class and poorer districts. Lot sizes were small, and owners usually filled them up with cottages, barns, sheds, and outhouses—all made of fast-burning wood, naturally. Because both Patrick and Catherine O’Leary worked, they were able to put a large addition on their cottage despite a lot size of just 25 by 100 feet. Interspersed in these residential areas were a variety of businesses—paint factories, lumberyards, distilleries, gasworks, mills, furniture manufacturers, warehouses, and coal distributors.

Wealthier districts were by no means free of fire hazards. Stately stone and brick homes had wood interiors, and stood side by side with smaller wood-frame houses. Wooden stables and other storage buildings were common, and trees lined the streets and filled the yards.

*Media Text*

*The Great Chicago Fire, an exhibit created by the Chicago Historical Society that includes essays and images:*  
<http://www.chicagohs.org/fire/intro/gcf-index.html>

**Greenberg, Jan, and Sandra Jordan. *Vincent Van Gogh: Portrait of an Artist*. New York: Random House, 2001. (2001)**  
**From Chapter 1: “A Brabant Boy 1853–75”**

I have nature and art and poetry, if that is not enough what is?  
 —Letter to Theo, January 1874

On March 30, 1853, the handsome, soberly dressed Reverend Theodorus van Gogh entered the ancient town hall of Groot-Zundert, in the Brabant, a province of the Netherlands. He opened the birth register to number twenty-nine, where exactly one year earlier he had sadly written “Vincent Willem van Gogh, stillborn.” Beside the inscription he wrote again “Vincent Willem van Gogh,” the name of his new, healthy son, who was sleeping soundly next to his mother in the tiny parsonage across the square. The baby’s arrival was an answered prayer for the still-grieving family.

The first Vincent lay buried in a tiny grave by the door of the church where Pastor van Gogh preached. The Vincent who lived grew to be a sturdy redheaded boy. Every Sunday on his way to church, young Vincent would pass the headstone carved with the name he shared. Did he feel as if his dead brother were the rightful Vincent, the one who would remain perfect in his parents’ hearts, and that he was merely an unsatisfactory replacement? That might have been one of the reasons he spent so much of his life feeling like a lonely outsider, as if he didn’t fit anywhere in the world.

Despite his dramatic beginning, Vincent had an ordinary childhood, giving no hint of the painter he would become. The small parsonage, with an upstairs just two windows wide under a slanting roof, quickly grew crowded. By the time he was six he had two sisters, Anna and Elizabeth, and one brother, Theo, whose gentle nature made him their mother’s favorite.

*Media Text*

*The Van Gogh Gallery, a commercial Web resource with links to Van Gogh’s art and information about his life:*  
<http://www.vangoghgallery.com/>

**Partridge, Elizabeth. *This Land Was Made for You and Me: The Life and Songs of Woody Guthrie*. New York: Viking, 2002. (2002)**  
**From the Preface: “Ramblin ’Round”**

“I hate a song that makes you think that you’re not any good. I hate a song that makes you think you are just born to lose. I am out to fight those kind of songs to my very last breath of air and my last drop of blood.”

Woody Guthrie could never cure himself of wandering off. One minute he'd be there, the next he'd be gone, vanishing without a word to anyone, abandoning those he loved best. He'd throw on a few extra shirts, one on top of the other, sling his guitar over his shoulder, and hit the road. He'd stick out his thumb and hitchhike, swing onto moving freight trains, and hunker down with other traveling men in flophouses, hobo jungles, and Hoovervilles across Depression America.

He moved restlessly from state to state, soaking up some songs: work songs, mountain and cowboy songs, sea chanteys, songs from the southern chain gangs. He added them to the dozens he already knew from his childhood until he was bursting with American folk songs. Playing the guitar and singing, he started making up new ones: hard-bitten, rough-edged songs that told it like it was, full of anger and hardship and hope and love. Woody said the best songs came to him when he was walking down a road. He always had fifteen or twenty songs running around in his mind, just waiting to be put together. Sometimes he knew the words, but not the melody. Usually he'd borrow a tune that was already well known—the simpler the better. As he walked along, he tried to catch a good, easy song that people could sing the first time they heard it, remember, and sing again later.

**Monk, Linda R. *Words We Live By: Your Annotated Guide to the Constitution*. New York: Hyperion, 2003. (2003)  
From “We the People ...”**

The first three words of the Constitution are the most important. They clearly state that the people—not the king, not the legislature, not the courts—are the true rulers in American government. This principle is known as popular sovereignty.

But who are “We the People”? This question troubled the nation for centuries. As Lucy Stone, one of America's first advocates for women's rights, asked in 1853, “‘We the People’? Which ‘We the People’? The women were not included.” Neither were white males who did not own property, American Indians, or African Americans—slave or free. Justice Thurgood Marshall, the first African American on the Supreme Court, described the limitation:

For a sense of the evolving nature of the Constitution, we need look no further than the first three words of the document's preamble: ‘We the People.’ When the Founding Fathers used this phrase in 1787, they did not have in mind the majority of America's citizens . . . The men who gathered in Philadelphia in 1787 could not . . . have imagined, nor would they have accepted, that the document they were drafting would one day be construed by a Supreme court to which had been appointed a woman and the descendant of an African slave.

Through the Amendment process, more and more Americans were eventually included in the Constitution's definition of “We the People.” After the Civil War, the Thirteenth Amendment ended slavery, the Fourteenth Amendment gave African Americans citizenship, and the Fifteenth Amendment gave black men the vote. In 1920, the Nineteenth Amendment gave women the right to vote nationwide, and in 1971, the Twenty-sixth Amendment extended suffrage to eighteen-year-olds.

**Freedman, Russell. *Freedom Walkers: The Story of the Montgomery Bus Boycott*. New York: Holiday House, 2006. (2006)  
From the Introduction: “Why They Walked”**

Not so long ago in Montgomery, Alabama, the color of your skin determined where you could sit on a public bus. If you happened to be an African American, you had to sit in the back of the bus, even if there were empty seats up front.

Back then, racial segregation was the rule throughout the American South. Strict laws—called “Jim Crow” laws—enforced a system of white supremacy that discriminated against blacks and kept them in their place as second-class citizens.

People were separated by race from the moment they were born in segregated hospitals until the day they were buried in segregated cemeteries. Blacks and whites did not attend the same schools, worship in the same churches, eat in the same restaurants, sleep in the same hotels, drink from the same water fountains, or sit together in the same movie theaters.

In Montgomery, it was against the law for a white person and a Negro to play checkers on public property or ride together in a taxi.

Most southern blacks were denied their right to vote. The biggest obstacle was the poll tax, a special tax that was required of all voters but was too costly for many blacks and for poor whites as well. Voters also had to pass a literacy test to prove that they could read, write, and understand the U.S. Constitution. These tests were often rigged to disqualify even highly educated blacks. Those who overcame the obstacles and insisted on registering as voters faced threats, harassment. And even physical violence. As a result, African Americans in the South could not express their grievances in the voting booth, which for the most part, was closed to them. But there were other ways to protest,



and one day a half century ago, the black citizens in Montgomery rose up in protest and united to demand their rights—by walking peacefully.

It all started on a bus.

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## Informational Texts: Science, Mathematics, and Technical Subjects

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**Macaulay, David. *Cathedral: The Story of Its Construction*. Boston: Houghton Mifflin, 1973. (1973)  
From pages 51–56**

In order to construct the vaulted ceiling a wooden scaffold was erected connecting the two walls of the choir one hundred and thirty feet above ground. On the scaffolding wooden centerings like those used for the flying buttresses were installed. They would support the arched stone ribs until the mortar was dry, at which times the ribs could support themselves. The ribs carried the webbing, which was the ceiling itself. The vaults were constructed one bay at a time, a bay being the rectangular area between four piers.

One by one, the cut stones of the ribs, called voussoirs, were hoisted onto the centering and mortared into place by the masons. Finally the keystone was lowered into place to lock the ribs together at the crown, the highest point of the arch.

The carpenters then installed pieces of wood, called lagging, that spanned the space between two centerings. On top of the lagging the masons laid one course or layer of webbing stones. The lagging supported the course of webbing until the mortar was dry. The webbing was constructed of the lightest possible stone to lessen the weight on the ribs. Two teams, each with a mason and a carpenter, worked simultaneously from both sides of the vault – installing first the lagging, then the webbing. When they met in the center the vault was complete. The vaulting over the aisle was constructed in the same way and at the same time.

When the mortar in the webbing had set, a four-inch layer of concrete was poured over the entire vault to prevent any cracking between the stones. Once the concrete had set, the lagging was removed and the centering was lowered and moved onto the scaffolding of the next bay. The procedure was repeated until eventually the entire choir was vaulted.

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**Mackay, Donald. *The Building of Manhattan*. New York: Harper & Row, 1987. (1987)**

*Media Text*

*Manhattan on the Web: History, a Web portal hosted by the New York Public Library:*  
<http://legacy.www.nypl.org/branch/manhattan/index2.cfm?Trq=1&d1=865>

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**Enzensberger, Hans Magnus. *The Number Devil: A Mathematical Adventure*. Illustrated by Rotraut Susanne Berner. Translated by Michael Henry Heim. New York: Henry Holt, 1998. (1998)  
From “The First Night”**

... “I see,” said the number devil with a wry smile. “I have nothing against your Mr. Bockel, but that kind of problem has nothing whatever to do with what I’m interested in. Do you want to know something? Most genuine mathematicians are bad at sums. Besides, they have no time to waste on them. That’s what pocket calculators are for. I assume you have one.

“Sure, but we’re not allowed to use them in school.”

“I see,” said the number devil. “That’s all right. There’s nothing wrong with a little addition and subtraction. You never know when your battery will die on you. But mathematics, my boy, that’s something else again!” . . .

... “The thing that makes numbers so devilish is precisely that they are simple. And you don’t need a calculator to prove it. You need one thing and one thing only: one. With one—I am speaking of the numeral of course—you can do almost anything. If you are afraid of large numbers—let’s say five million seven hundred and twenty-three thousand eight hundred and twelve—all you have to do is start with



1 + 1  
 1+1+1  
 1+1+1+1  
 1+1+1+1+1

... and go on until you come to five million etcetera. You can't tell me that's too complicated for you, can you?

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**Peterson, Ivars and Nancy Henderson. *Math Trek: Adventures in the Math Zone*. San Francisco: Jossey-Bass, 2000. (2000)  
 From "Trek 7, The Fractal Pond Race"**

From the meanderings of a pond's edge to the branching of trees and the intricate forms of snowflakes, shapes in nature are often more complicated than geometrical shapes such as circles, spheres, angles, cones, rectangles, and cubes. Benoit Mandelbrot, a mathematics professor at Yale University and an IBM fellow, was the first person to recognize how amazingly common this type of structure is in nature. In 1975, he coined the term fractal for shapes that repeat themselves within an object. The word fractal comes from the Latin term for "broken."

In 1904, long before Mandelbrot conceived of fractals, Swedish mathematician Helge von Koch created and intriguing but puzzling curve. It zigzags in such an odd pattern that it seems impossible to start at one point and follow the curve to reach another point.

Like many figures now known to be fractals, Koch's curve is easy to generate by starting with a simple figure and turning it into an increasingly crinkly form.

#### What to Do

1. Draw an equilateral triangle with each side measuring 9 centimeters. (Remember, each angle of an equilateral triangle measures  $60^\circ$ .)
2. Divide each 9-centimeter side into three parts, each measuring three centimeters. At the middle of each side, add an equilateral triangle one third the size of the original, facing outward. Because each side of the original triangle is 9 centimeters, the new triangles will have 3-centimeter sides. When you examine the outer edge of your diagram you should see a six-pointed star made up of 12 line segments.
3. At the middle of each segment of the star, add a triangle one ninth the side of the original triangle. The new triangles will have sides 1 centimeter in length so divide each 3-centimeter segment into thirds, and use the middle third to form a new triangle.
4. Going one step farther, you create a shape that begins to resemble a snowflake. If you were to continue the process by endlessly adding smaller and smaller triangles to every new side, you would produce the Koch snowflake curve. Between any two points, the snowflake would have an infinite number of zigzags.

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**Katz, John. *Geeks: How Two Lost Boys Rode the Internet out of Idaho*. New York: Broadway Books, 2001. (2001)**

Jesse and Eric lived in a cave-an airless two-bedroom apartment in a dank stucco-and-brick complex on the outskirts of Caldwell. Two doors down, chickens paraded around the street.

The apartment itself was dominated by two computers that sat across from the front door like twin shrines. Everything else-the piles of dirty laundry, the opened Doritos bags, the empty cans of generic soda pop, two ratty old chairs, and a moldering beanbag chair-was dispensable, an afterthought, props.

Jesse's computer was a Pentium 11 300, Asus P2B (Intel BX chipset) motherboard; a Matrix Milleniurn II AGP; 160 MB SDRAM with a 15.5 GB total hard-drive space; a 4X CD-recorder; 24X CD-ROM; a 17-inch Micron monitor. Plus a scanner and printer. A well-thumbed paperback-Katherine Dunn's novel *Geek Love*-served as his mousepad.

Eric's computer: an AMD K-6 233 with a generic motherboard; an S3 video card, a 15-inch monitor; a 2.5 GB hard drive with 36 MB SDRAM. Jesse wangled the parts for both from work.

They stashed their bikes and then Jesse blasted in through the door, which was always left open since he can never hang on to keys, and went right to his PC, which was always on. He yelled a question to Eric about the new operating system. "We change them like cartons of milk," he explained. At the moment, he had NT 5, NT 4, Work Station, Windows 98, and he and Eric had begun fooling around with Linux, the complex, open-source software system rapidly spreading across the world.

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**Petroski, Henry. "The Evolution of the Grocery Bag." *American Scholar* 72.4 (Autumn 2003). (2003)**

That much-reviled bottleneck known as the American supermarket checkout lane would be an even greater exercise in frustration were it not for several technological advances. The Universal Product Code and the decoding laser scanner, introduced in 1974, tally a shopper's groceries far more quickly and accurately than the old method of inputting each purchase manually into a cash register. But beeping a large order past the scanner would have led only to a faster pileup of cans and boxes down the line, where the bagger works, had it not been for the introduction, more than a century earlier, of an even greater technological masterpiece: the square-bottomed paper bag.

The geometry of paper bags continues to hold a magical appeal for those of us who are fascinated by how ordinary things are designed and made. Originally, grocery bags were created on demand by storekeepers, who cut, folded, and pasted sheets of paper, making versatile containers into which purchases could be loaded for carrying home. The first paper bags manufactured commercially are said to have been made in Bristol, England, in the 1840s. In 1852, a "Machine for Making Bags of Paper" was patented in America by Francis Wolle, of Bethlehem, Pennsylvania. According to Wolle's own description of the machine's operation, "pieces of paper of suitable length are given out from a roll of the required width, cut off from the roll and otherwise suitably cut to the required shape, folded, their edges pasted and lapped, and formed into complete and perfect bags." The "perfect bags" produced at the rate of eighteen hundred per hour by Wolle's machine were, of course, not perfect, nor was his machine. The history of design has yet to see the development of a perfect object, though it has seen many satisfactory ones and many substantially improved ones. The concept of comparative improvement is embedded in the paradigm for invention, the better mousetrap. No one is ever likely to lay claim to a "best" mousetrap, for that would preclude the inventor himself from coming up with a still better mousetrap without suffering the embarrassment of having previously declared the search complete. As with the mousetrap, so with the bag.

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**"Geology." *U\*X\*L Encyclopedia of Science*. Edited by Rob Nagel. Farmington Hills, Mich.: Gale Cengage Learning, 2007. (2007)**

Geology is the scientific study of Earth. Geologists study the planet—its formation, its internal structure, its materials, its chemical and physical processes, and its history. Mountains, valleys, plains, sea floors, minerals, rocks, fossils, and the processes that create and destroy each of these are all the domain of the geologist. Geology is divided into two broad categories of study: physical geology and historical geology.

Physical geology is concerned with the processes occurring on or below the surface of Earth and the materials on which they operate. These processes include volcanic eruptions, landslides, earthquakes, and floods. Materials include rocks, air, seawater, soils, and sediment. Physical geology further divides into more specific branches, each of which deals with its own part of Earth's materials, landforms, and processes. Mineralogy and petrology investigate the composition and origin of minerals and rocks. Volcanologists study lava, rocks, and gases on live, dormant, and extinct volcanoes. Seismologists use instruments to monitor and predict earthquakes and volcanic eruptions.

Historical geology is concerned with the chronology of events, both physical and biological, that have taken place in Earth's history. Paleontologists study fossils (remains of ancient life) for evidence of the evolution of life on Earth. Fossils not only relate evolution, but also speak of the environment in which the organism lived. Corals in rocks at the top of the Grand Canyon in Arizona, for example, show a shallow sea flooded the area around 290 million years ago. In addition, by determining the ages and types of rocks around the world, geologists piece together continental and oceanic history over the past few billion years. Plate tectonics (the study of the movement of the sections of Earth's crust) adds to Earth's story with details of the changing configuration of the continents and oceans.

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**"Space Probe." *Astronomy & Space: From the Big Bang to the Big Crunch*. Edited by Phillis Engelbert. Farmington Hills, Mich.: Gale Cengage Learning, 2009. (2009)**

A space probe is an uncrewed spacecraft that leaves Earth's orbit to explore the Moon, planets, asteroids, comets, or other objects in outer space as directed by onboard computers and/or instructions sent from Earth. The purpose of such missions is to make scientific observations, such as taking pictures, measuring atmospheric conditions, and collecting soil samples, and to bring or report the data back to Earth.

Numerous space probes have been launched since the former Soviet Union first fired Luna 1 toward the Moon in 1959. Probes have now visited each of the eight planets in the solar system.

In fact, two probes—Voyager 1 and Voyager 2—are approaching the edge of the solar system, for their eventual trip into the interstellar medium. By January 2008 Voyager 1 was about 9.4 billion miles (15.2 billion kilometers) from the Sun and in May 2008 it entered the heliosheath (the boundary where the solar wind is thought to end), which is the area that roughly divides the solar system from interstellar space. Voyager 2 is not quite as far as its sister probe. Voyager 1 is expected to be the first human space probe to leave the solar system. Both Voyager probes are still transmit-

ting signals back to Earth. They are expected to help gather further information as to the true boundary of the solar system.

The earliest probes traveled to the closest extraterrestrial target, the Moon. The former Soviet Union launched a series of Luna probes that provided humans with first pictures of the far side of the Moon. In 1966, Luna 9 made the first successful landing on the Moon and sent back television footage from the Moon's surface.

The National Aeronautics and Space Administration (NASA) initially made several unsuccessful attempts to send a probe to the Moon. Not until 1964 did a Ranger probe reach its mark and send back thousands of pictures. Then, a few months after Luna 9, NASA landed Surveyor on the Moon.

In the meantime, NASA was moving ahead with the first series of planetary probes, called Mariner. Mariner 2 first reached the planet Venus in 1962. Later Mariner spacecrafts flew by Mars in 1964 and 1969, providing detailed images of that planet. In 1971, Mariner 9 became the first spacecraft to orbit Mars. During its year in orbit, Mariner 9's two television cameras transmitted footage of an intense Martian dust storm, as well as images of 90 percent of the planet's surface and the two Martian natural satellites (moons).

Encounters were also made with Mars in 1976 by the U.S. probes Viking 1 and Viking 2. Each Viking spacecraft consisted of both an orbiter and a lander. Viking 1 made the first successful soft landing on Mars on July 20, 1976. Soon after, Viking 2 landed on the opposite side of the planet. The Viking orbiters made reports on the Martian weather and photographed almost the entire surface of the planet.

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**“Elementary Particles.” *New Book of Popular Science*. New York: Scholastic, 2010. (2010)**

**California Invasive Plant Council. *Invasive Plant Inventory*. <http://www.cal-ipc.org/ip/inventory/index.php>. 2006-2010. (2010)**

The Inventory categorizes plants as High, Moderate, or Limited, reflecting the level of each species' negative ecological impact in California. Other factors, such as economic impact or difficulty of management, are not included in this assessment. It is important to note that even Limited species are invasive and should be of concern to land managers. Although the impact of each plant varies regionally, its rating represents cumulative impacts statewide. Therefore, a plant whose statewide impacts are categorized as Limited may have more severe impacts in a particular region. Conversely, a plant categorized as having a High cumulative impact across California may have very little impact in some regions.

The Inventory Review Committee, Cal-IPC staff, and volunteers drafted assessments for each plant based on the formal criteria system described below. The committee solicited information from land managers across the state to complement the available literature. Assessments were released for public review before the committee finalized them. The 2006 list includes 39 High species, 65 Moderate species, and 89 Limited species. Additional information, including updated observations, will be added to this website periodically, with revisions tracked and dated.

**Definitions**

The Inventory categorizes “invasive non-native plants that threaten wildlands” according to the definitions below. Plants were evaluated only if they invade California wildlands with native habitat values. The Inventory does not include plants found solely in areas of human-caused disturbance such as roadsides and cultivated agricultural fields.

- Wildlands are public and private lands that support native ecosystems, including some working landscapes such as grazed rangeland and active timberland.
- Non-native plants are species introduced to California after European contact and as a direct or indirect result of human activity.
- Invasive non-native plants that threaten wildlands are plants that 1) are not native to, yet can spread into, wildland ecosystems, and that also 2) displace native species, hybridize with native species, alter biological communities, or alter ecosystem processes.

## Sample Performance Tasks for Informational Texts: History/Social Studies & Science, Mathematics, and Technical Subjects

- Students analyze the governmental structure of the United States and *support* their *analysis* by *citing specific textual evidence* from *primary sources* such as the Preamble and First Amendment of the U.S. Constitution as well as secondary sources such as Linda R. Monk's *Words We Live By: Your Annotated Guide to the Constitution*. [RH.6–8.1]
- Students evaluate Jim Murphy's *The Great Fire* to *identify* which *aspects of the text* (e.g., *loaded language* and the *inclusion of particular facts*) *reveal* his purpose; presenting Chicago as a city that was “ready to burn.” [RH.6–8.6]
- Students *describe how* Russell Freedman in his book *Freedom Walkers: The Story of the Montgomery Bus Boycott* integrates and *presents information* both *sequentially* and *causally* to explain how the civil rights movement began. [RH.6–8.5]
- Students *integrate* the *quantitative or technical information* expressed in the *text* of David Macaulay's *Cathedral: The Story of Its Construction* with the information conveyed by the *diagrams* and *models* Macaulay provides, developing a deeper understanding of Gothic architecture. [RST.6–8.7]
- Students construct a holistic picture of the history of Manhattan by *comparing and contrasting the information gained from* Donald Mackay's *The Building of Manhattan* with the *multimedia sources* available on the “Manhattan on the Web” portal hosted by the New York Public Library (<http://legacy.www.nypl.org/branch/manhattan/index2.cfm?Trg=1&d1=865>). [RST.6–8.9]
- Students learn about fractal geometry by reading Ivars Peterson and Nancy Henderson's *Math Trek: Adventures in the Math Zone* and then generate their own fractal geometric structure by *following the multistep procedure* for creating a Koch's curve. [RST.6–8.3]