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forms Shakespeare’s play Macbeth in order to develop a similar plot set in feudal Japan. [RL.9–10.9]

- Students analyze how artistic representations of Ramses II (the pharaoh who reigned during the time of Moses) vary, basing their analysis on what is emphasized or absent in different treatments of the pharaoh in works of art (e.g., images in the British Museum) and in Percy Bysshe Shelley’s poem “Ozymandias.” [RL.9–10.7]

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**Informational Texts: English Language Arts**

**Henry, Patrick. “Speech to the Second Virginia Convention.”** (1775)

MR. PRESIDENT: No man thinks more highly than I do of the patriotism, as well as abilities, of the very worthy gentlemen who have just addressed the House. But different men often see the same subject in different lights; and, therefore, I hope it will not be thought disrespectful to those gentlemen if, entertaining as I do, opinions of a character very opposite to theirs, I shall speak forth my sentiments freely, and without reserve. This is no time for ceremony. The question before the House is one of awful moment to this country. For my own part, I consider it as nothing less than a question of freedom or slavery; and in proportion to the magnitude of the subject ought to be the freedom of the debate. It is only in this way that we can hope to arrive at truth, and fulfill the great responsibility which we hold to God and our country. Should I keep back my opinions at such a time, through fear of giving offence, I should consider myself as guilty of treason towards my country, and of an act of disloyalty toward the majesty of heaven, which I revere above all earthly kings.

Mr. President, it is natural to man to indulge in the illusions of hope. We are apt to shut our eyes against a painful truth, and listen to the song of that siren till she transforms us into beasts. Is this the part of wise men, engaged in a great and arduous struggle for liberty? Are we disposed to be of the number of those who, having eyes, see not, and, having ears, hear not, the things which so nearly concern their temporal salvation? For my part, whatever anguish of spirit it may cost, I am willing to know the whole truth; to know the worst, and to provide for it.

I have but one lamp by which my feet are guided; and that is the lamp of experience. I know of no way of judging of the future but by the past. And judging by the past, I wish to know what there has been in the conduct of the British ministry for the last ten years, to justify those hopes with which gentlemen have been pleased to solace themselves, and the House? Is it that insidious smile with which our petition has been lately received? Trust it not, sir; it will prove a snare to your feet. Suffer not yourselves to be betrayed with a kiss. Ask yourselves how this gracious reception of our petition comports with these war-like preparations which cover our waters and darken our land. Are fleets and armies necessary to a work of love and reconciliation? Have we shown ourselves so unwilling to be reconciled, that force must be called in to win back our love? Let us not deceive ourselves, sir. These are the implements of war and subjugation; the last arguments to which kings resort. I ask, gentlemen, sir, what means this martial array, if its purpose be not to force us to submission? Can gentlemen assign any other possible motive for it? Has Great Britain any enemy, in this quarter of the world, to call for all this accumulation of navies and armies? No, sir, she has none. They are meant for us; they can be meant for no other. They are sent over to bind and rivet upon us those chains which the British ministry have been so long forging. And what have we to oppose to them? Shall we try argument? Sir, we have been trying that for the last ten years. Have we anything new to offer upon the subject? Nothing. We have held the subject up in every light of which it is capable; but it has been all in vain. Shall we resort to entreaty and humble supplication? What terms shall we find which have not been already exhausted? Let us not, I beseech you, sir, deceive ourselves. Sir, we have done everything that could be done, to avert the storm which is now coming on. We have petitioned; we have remonstrated; we have supplicated; we have prostrated ourselves before the throne, and have implored its interposition to arrest the tyrannical hands of the ministry and Parliament. Our petitions have been slighted; our remonstrances have produced additional violence and insult; our supplications have been disregarded; and we have been spurned, with contempt, from the foot of the throne. In vain, after these things, may we indulge the fond hope of peace and reconciliation. There is no longer any room for hope. If we wish to be free, if we mean to preserve inviolate those inestimable privileges for which we have been so long contending, if we mean not basely to abandon the noble struggle in which we have been so long engaged, and which we have pledged ourselves never to abandon until the glorious object of our contest shall be obtained, we must fight! I repeat it, sir, we must fight! An appeal to arms and to the God of Hosts is all that is left us!

They tell us, sir, that we are weak; unable to cope with so formidable an adversary. But when shall we be stronger? Will it be the next week, or the next year? Will it be when we are totally disarmed, and when a British guard shall be stationed in every house? Shall we gather strength by irresolution and inaction? Shall we acquire the means of effectual resistance, by lying supinely on our backs, and hugging the delusive phantom of hope, until our enemies shall have bound us hand and foot? Sir, we are not weak if we make a proper use of those means which the God of nature hath placed in our power. Three millions of people, armed in the holy cause of liberty, and in such a country as that which we possess, are invincible by any force which our enemy can send against us. Besides, sir, we shall not fight our
battles alone. There is a just God who presides over the destinies of nations; and who will raise up friends to fight our battles for us. The battle, sir, is not to the strong alone; it is to the vigilant, the active, the brave. Besides, sir, we have no election. If we were base enough to desire it, it is now too late to retire from the contest. There is no retreat but in submission and slavery! Our chains are forged! Their clanking may be heard on the plains of Boston! The war is inevitable and let it come! I repeat it, sir, let it come.

It is in vain, sir, to extenuate the matter. Gentlemen may cry, Peace, Peace but there is no peace. The war is actually begun! The next gale that sweeps from the north will bring to our ears the clash of resounding arms! Our brethren are already in the field! Why stand we here idle? What is it that gentlemen wish? What would they have? Is life so dear, or peace so sweet, as to be purchased at the price of chains and slavery? Forbid it, Almighty God! I know not what course others may take; but as for me, give me liberty or give me death!

Washington, George. “Farewell Address.” (1796)

Against the insidious wiles of foreign influence (I conjure you to believe me, fellow-citizens) the jealousy of a free people ought to be constantly awake, since history and experience prove that foreign influence is one of the most baneful foes of republican government. But that jealousy to be useful must be impartial; else it becomes the instrument of the very influence to be avoided, instead of a defense against it. Excessive partiality for one foreign nation and excessive dislike of another cause those whom they actuate to see danger only on one side, and serve to veil and even second the arts of influence on the other. Real patriots who may resist the intrigues of the favorite are liable to become suspected and odious, while its tools and dupes usurp the applause and confidence of the people, to surrender their interests.

The great rule of conduct for us in regard to foreign nations is in extending our commercial relations, to have with them as little political connection as possible. So far as we have already formed engagements, let them be fulfilled with perfect good faith. Here let us stop. Europe has a set of primary interests which to us have none; or a very remote relation. Hence she must be engaged in frequent controversies, the causes of which are essentially foreign to our concerns. Hence, therefore, it must be unwise in us to implicate ourselves by artificial ties in the ordinary vicissitudes of her politics, or the ordinary combinations and collisions of her friendships or enmities.

Our detached and distant situation invites and enables us to pursue a different course. If we remain one people under an efficient government, the period is not far off when we may defy material injury from external annoyance; when we may take such an attitude as will cause the neutrality we may at any time resolve upon to be scrupulously respected; when belligerent nations, under the impossibility of making acquisitions upon us, will not lightly hazard the giving us provocation; when we may choose peace or war, as our interest, guided by justice, shall counsel.

Why forego the advantages of so peculiar a situation? Why quit our own to stand upon foreign ground? Why, by interweaving our destiny with that of any part of Europe, entangle our peace and prosperity in the toils of European ambition, rivalship, interest, humor or caprice?

It is our true policy to steer clear of permanent alliances with any portion of the foreign world; so far, I mean, as we are now at liberty to do it; for let me not be understood as capable of patronizing infidelity to existing engagements. I hold the maxim no less applicable to public than to private affairs, that honesty is always the best policy. I repeat it, therefore, let those engagements be observed in their genuine sense. But, in my opinion, it is unnecessary and would be unwise to extend them.

Lincoln, Abraham. “Gettysburg Address.” (1863)

Fourscore and seven years ago, our fathers brought forth upon this continent a new nation, conceived in liberty, and dedicated to the proposition that all men are created equal.

Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battlefield of that war. We are met to dedicate a portion of it as the final resting-place of those who here gave their lives that that nation might live. It is altogether fitting and proper that we

But in a large sense we cannot dedicate,—we cannot consecrate,—we cannot hallow this ground. The brave men, living and dead, who struggled here, have consecrated it far above our power to add or detract. The world will little note, nor long remember, what we say here, but it can never forget what they did here. It is for us, the living, rather to be dedicated here to the unfinished work that they have thus far so nobly carried on. It is, rather for us to be here dedicated to the great task remaining before us, that from these honored dead we take increased devotion to that cause for which they here gave the last full measure of devotion; that we here highly resolve that these dead shall not have died in vain; that this nation, under God, shall have a new birth of freedom, and that Government of the people, by the people and for the people, shall not perish from the earth.
Lincoln, Abraham. “Second Inaugural Address.” (1865)

Fellow-Countrymen:

At this second appearing to take the oath of the Presidential office there is less occasion for an extended address than there was at the first. Then a statement somewhat in detail of a course to be pursued seemed fitting and proper. Now, at the expiration of four years, during which public declarations have been constantly called forth on every point and phase of the great contest which still absorbs the attention and engrosses the energies of the nation, little that is new could be presented. The progress of our arms, upon which all else chiefly depends, is as well known to the public as to myself, and it is, I trust, reasonably satisfactory and encouraging to all. With high hope for the future, no prediction in regard to it is ventured.

On the occasion corresponding to this four years ago all thoughts were anxiously directed to an impending civil war. All dreaded it, all sought to avert it. While the inaugural address was being delivered from this place, devoted altogether to saving the Union without war, urgent agents were in the city seeking to destroy it without war—seeking to dissolve the Union and divide effects by negotiation. Both parties deprecated war, but one of them would make war rather than let the nation survive, and the other would accept war rather than let it perish, and the war came.

One-eighth of the whole population were colored slaves, not distributed generally over the Union, but localized in the southern part of it. These slaves constituted a peculiar and powerful interest. All knew that this interest was somehow the cause of the war. To strengthen, perpetuate, and extend this interest was the object for which the insurgents would rend the Union even by war, while the Government claimed no right to do more than to restrict the territorial enlargement of it. Neither party expected for the war the magnitude or the duration which it has already attained. Neither anticipated that the cause of the conflict might cease with or even before the conflict itself should cease. Each looked for an easier triumph, and a result less fundamental and astounding. Both read the same Bible and pray to the same God, and each invoked His aid against the other. It may seem strange that any men should dare to ask a just God's assistance in wringing their bread from the sweat of other men's faces, but let us judge not, that we be not judged. The prayers of both could not be answered. That of neither has been answered fully. The Almighty has His own purposes. “Woe unto the world because of offenses; for it must needs be that offenses come, but woe to that man by whom the offense cometh.” If we shall suppose that American slavery is one of those offenses which, in the providence of God, must needs come, but which, having continued through His appointed time, He now wills to remove, and that He gives to both North and South this terrible war as the woe due to those by whom the offense came, shall we discern therein any departure from those divine attributes which the believers in a living God always ascribe to Him? Fondly do we hope, fervently do we pray, that this mighty scourge of war may speedily pass away. Yet, if God wills that it continue until all the wealth piled by the bondsman's two hundred and fifty years of unrequited toil shall be sunk, and until every drop of blood drawn with the lash shall be paid by another drawn with the sword, as was said three thousand years ago, so still it must be said “the judgments of the Lord are true and righteous altogether.”

With malice toward none, with charity for all, with firmness in the right as God gives us to see the right, let us strive on to finish the work we are in, to bind up the nation's wounds, to care for him who shall have borne the battle and for his widow and his orphan, to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.

Roosevelt, Franklin Delano. “State of the Union Address.” (1941)

For there is nothing mysterious about the foundations of a healthy and strong democracy. The basic things expected by our people of their political and economic systems are simple. They are:

Equality of opportunity for youth and for others.

Jobs for those who can work.

Security for those who need it.

The ending of special privilege for the few.

The preservation of civil liberties for all.

The enjoyment of the fruits of scientific progress in a wider and constantly rising standard of living.

These are the simple, basic things that must never be lost sight of in the turmoil and unbelievable complexity of our modern world. The inner and abiding strength of our economic and political systems is dependent upon the degree to which they fulfill these expectations.

Many subjects connected with our social economy call for immediate improvement. As examples:
We should bring more citizens under the coverage of old-age pensions and unemployment insurance.

We should widen the opportunities for adequate medical care.

We should plan a better system by which persons deserving or needing gainful employment may obtain it.

I have called for personal sacrifice. I am assured of the willingness of almost all Americans to respond to that call.

A part of the sacrifice means the payment of more money in taxes. In my Budget Message I shall recommend that a greater portion of this great defense program be paid for from taxation than we are paying today. No person should try, or be allowed, to get rich out of this program; and the principle of tax payments in accordance with ability to pay should be constantly before our eyes to guide our legislation.

If the Congress maintains these principles, the voters, putting patriotism ahead of pocketbooks, will give you their applause.

In the future days, which we seek to make secure, we look forward to a world founded upon four essential human freedoms.

The first is freedom of speech and expression—everywhere in the world.

The second is freedom of every person to worship God in his own way—everywhere in the world.

The third is freedom from want—which, translated into world terms, means economic understandings which will secure to every nation a healthy peacetime life for its inhabitants—everywhere in the world.

The fourth is freedom from fear—which, translated into world terms, means a world-wide reduction of armaments to such a point and in such a thorough fashion that no nation will be in a position to commit an act of physical aggression against any neighbor—anywhere in the world.

Hand, Learned. “I Am an American Day Address.” (1944)

We have gathered here to affirm a faith, a faith in a common purpose, a common conviction, a common devotion. Some of us have chosen America as the land of our adoption; the rest have come from those who did the same. For this reason we have some right to consider ourselves a picked group, a group of those who had the courage to break from the past and brave the dangers and the loneliness of a strange land. What was the object that nerved us, or those who went before us, to this choice? We sought liberty; freedom from oppression, freedom from want, freedom to be ourselves. This we then sought; this we now believe that we are by way of winning. What do we mean when we say that first of all we seek liberty? I often wonder whether we do not rest our hopes too much upon constitutions, upon laws and upon courts. These are false hopes; believe me, these are false hopes. Liberty lies in the hearts of men and women; when it dies there, no constitution, no law, no court can even do much to help it. While it lies there it needs no constitution, no law, no court to save it. And what is this liberty which must lie in the hearts of men and women? It is not the ruthless, the unbridled will; it is not freedom to do as one likes. That is the denial of liberty, and leads straight to its overthrow. A society in which men recognize no check upon their freedom soon becomes a society where freedom is the possession of only a savage few; as we have learned to our sorrow.

What then is the spirit of liberty? I cannot define it; I can only tell you my own faith. The spirit of liberty is the spirit which is not too sure that it is right; the spirit of liberty is the spirit which seeks to understand the mind of other men and women; the spirit of liberty is the spirit which weighs their interests alongside its own without bias; the spirit of liberty remembers that not even a sparrow falls to earth unheeded; the spirit of liberty is the spirit of Him who, near two thousand years ago, taught mankind that lesson it has never learned but never quite forgotten; that there may be a kingdom where the least shall be heard and considered side by side with the greatest. And now in that spirit, that spirit of an America which has never been, and which may never be; nay, which never will be except as the conscience and courage of Americans create it; yet in the spirit of that America which lies hidden in some form in the aspirations of us all; in the spirit of that America for which our young men are at this moment fighting and dying; in that spirit of liberty and of America I ask you to rise and with me pledge our faith in the glorious destiny of our beloved country.

Smith, Margaret Chase. “Remarks to the Senate in Support of a Declaration of Conscience.” (1950)

Mr. President:

I would like to speak briefly and simply about a serious national condition. It is a national feeling of fear and frustration that could result in national suicide and the end of everything that we Americans hold dear. It is a condition that comes from the lack of effective leadership in either the Legislative Branch or the Executive Branch of our Government.
That leadership is so lacking that serious and responsible proposals are being made that national advisory commissions be appointed to provide such critically needed leadership.

I speak as briefly as possible because too much harm has already been done with irresponsible words of bitterness and selfish political opportunism. I speak as briefly as possible because the issue is too great to be obscured by eloquence. I speak simply and briefly in the hope that my words will be taken to heart.

I speak as a Republican. I speak as a woman. I speak as a United States Senator. I speak as an American.

The United States Senate has long enjoyed worldwide respect as the greatest deliberative body in the world. But recently that deliberative character has too often been debased to the level of a forum of hate and character assassination sheltered by the shield of congressional immunity.

It is ironical that we Senators can in debate in the Senate directly or indirectly, by any form of words, impute to any American who is not a Senator any conduct or motive unworthy or unbecoming an American—and without that non-Senator American having any legal redress against us—yet if we say the same thing in the Senate about our colleagues we can be stopped on the grounds of being out of order.

It is strange that we can verbally attack anyone else without restraint and with full protection and yet we hold ourselves above the same type of criticism here on the Senate Floor. Surely the United States Senate is big enough to take self-criticism and self-appraisal. Surely we should be able to take the same kind of character attacks that we “dish out” to outsiders.

I think that it is high time for the United States Senate and its members to do some soul-searching—for us to weigh our consciences—on the manner in which we are performing our duty to the people of America—on the manner in which we are using or abusing our individual powers and privileges.

I think that it is high time that we remembered that we have sworn to uphold and defend the Constitution. I think that it is high time that we remembered that the Constitution, as amended, speaks not only of the freedom of speech but also of trial by jury instead of trial by accusation.

Whether it be a criminal prosecution in court or a character prosecution in the Senate, there is little practical distinction when the life of a person has been ruined.

Those of us who shout the loudest about Americanism in making character assassinations are all too frequently those who, by our own words and acts, ignore some of the basic principles of Americanism:

The right to criticize;

The right to hold unpopular beliefs;

The right to protest;

The right of independent thought.

The exercise of these rights should not cost one single American citizen his reputation or his right to a livelihood nor should he be in danger of losing his reputation or livelihood merely because he happens to know someone who holds unpopular beliefs. Who of us doesn’t? Otherwise none of us could call our souls our own. Otherwise thought control would have set in.

The American people are sick and tired of being afraid to speak their minds lest they be politically smeared as “Communists” or “Fascists” by their opponents. Freedom of speech is not what it used to be in America. It has been so abused by some that it is not exercised by others.

The American people are sick and tired of seeing innocent people smeared and guilty people whitewashed. But there have been enough proved cases, such as the Amerasia case, the Hiss case, the Coplon case, the Gold case, to cause the nationwide distrust and strong suspicion that there may be something to the unproved, sensational accusations.

I doubt if the Republican Party could—simply because I don’t believe the American people will uphold any political party that puts political exploitation above national interest. Surely we Republicans aren’t that desperate for victory.

I don’t want to see the Republican Party win that way. While it might be a fleeting victory for the Republican Party, it would be a more lasting defeat for the American people. Surely it would ultimately be suicide for the Republican Party and the two-party system that has protected our American liberties from the dictatorship of a one party system.

As members of the Minority Party, we do not have the primary authority to formulate the policy of our Government. But we do have the responsibility of rendering constructive criticism, of clarifying issues, of allaying fears by acting as
responsible citizens.

As a woman, I wonder how the mothers, wives, sisters, and daughters feel about the way in which members of their families have been politically mangled in the Senate debate—and I use the word “debate” advisedly.

As a United States Senator, I am not proud of the way in which the Senate has been made a publicity platform for irresponsible sensationalism. I am not proud of the reckless abandon in which unproved charges have been hurled from the side of the aisle. I am not proud of the obviously staged, undignified countercharges that have been attempted in retaliation from the other side of the aisle.

I don’t like the way the Senate has been made a rendezvous for vilification, for selfish political gain at the sacrifice of individual reputations and national unity. I am not proud of the way we smear outsiders from the Floor of the Senate and hide behind the cloak of congressional immunity and still place ourselves beyond criticism on the Floor of the Senate.

As an American, I am shocked at the way Republicans and Democrats alike are playing directly into the Communist design of “confuse, divide, and conquer.” As an American, I don’t want a Democratic Administration “whitewash” or “cover-up” any more than I want a Republican smear or witch hunt.

As an American, I condemn a Republican “Fascist” just as much I condemn a Democratic “Communist.” I condemn a Democrat “Fascist” just as much as I condemn a Republican “Communist.” They are equally dangerous to you and me and to our country. As an American, I want to see our nation recapture the strength and unity it once had when we fought the enemy instead of ourselves.

It is with these thoughts that I have drafted what I call a “Declaration of Conscience.” I am gratified that Senator Tobey, Senator Aiken, Senator Morse, Senator Ives, Senator Thye, and Senator Hendrickson have concurred in that declaration and have authorized me to announce their concurrence.


My Dear Fellow Clergymen:

While confined here in the Birmingham city jail, I came across your recent statement calling my present activities “unwise and untimely.” Seldom do I pause to answer criticism of my work and ideas. If I sought to answer all the criticisms that cross my desk, my secretaries would have little time for anything other than such correspondence in the course of the day, and I would have no time for constructive work. But since I feel that you are men of genuine good will and that your criticisms are sincerely set forth, I want to try to answer your statements in what I hope will be patient and reasonable terms.

I think I should indicate why I am here In Birmingham, since you have been influenced by the view which argues against “outsiders coming in.” I have the honor of serving as president of the Southern Christian Leadership Conference, an organization operating in every southern state, with headquarters in Atlanta, Georgia. We have some eighty-five affiliated organizations across the South, and one of them is the Alabama Christian Movement for Human Rights. Frequently we share staff, educational and financial resources with our affiliates. Several months ago the affiliate here in Birmingham asked us to be on call to engage in a nonviolent direct-action program if such were deemed necessary. We readily consented, and when the hour came we lived up to our promise. So I, along with several members of my staff, am here because I was invited here I am here because I have organizational ties here.

But more basically, I am in Birmingham because injustice is here. Just as the prophets of the eighth century B.C. left their villages and carried their “thus saith the Lord” far beyond the boundaries of their home towns, and just as the Apostle Paul left his village of Tarsus and carried the gospel of Jesus Christ to the far corners of the Greco-Roman world, so am I compelled to carry the gospel of freedom beyond my own home town. Like Paul, I must constantly respond to the Macedonian call for aid.

Moreover, I am cognizant of the interrelatedness of all communities and states. I cannot sit idly by in Atlanta and not be concerned about what happens in Birmingham. Injustice anywhere is a threat to justice everywhere. We are caught in an inescapable network of mutuality, tied in a single garment of destiny. Whatever affects one directly, affects all indirectly. Never again can we afford to live with the narrow, provincial “outside agitator” idea. Anyone who lives inside the United States can never be considered an outsider anywhere within its bounds.

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King, Jr., Martin Luther. “I Have a Dream: Address Delivered at the March on Washington, D.C., for Civil Rights on August 28, 1963.” (1963)

*From Chapter 14*

She said she was going to give me some books and that I not only must read them, I must read them aloud. She suggested that I try to make a sentence sound in as many different ways as possible.

“I’ll accept no excuse if you return a book to me that has been badly handled.” My imagination boggled at the punishment I would deserve if in fact I did abuse a book of Mrs. Flowers’. Death would be too kind and brief.

The odors in the house surprised me. Somehow I had never connected Mrs. Flowers with food or eating or any other common experience of common people. There must have been an outhouse, too, but my mind never recorded it.

The sweet scent of vanilla had met us as she opened the door.

“I made tea cookies this morning. You see, I had planned to invite you for cookies and lemonade so we could have this little chat. The lemonade is in the icebox.”

It followed that Mrs. Flowers would have ice on an ordinary day, when most families in our town bought ice late on Saturdays only a few times during the summer to be used in the wooden ice-cream freezers.

She took the bags from me and disappeared through the kitchen door. I looked around the room that I had never in my wildest fantasies imagined I would see. Browned photographs leered or threatened from the walls and the white, freshly done curtains pushed against themselves and against the wind. I wanted to gobble up the room entire and take it to Bailey, who would help me analyze and enjoy it.


It is with a profound sense of humility that I accept the honor - the highest there is - that you have chosen to bestow upon me. I know your choice transcends my person.

Do I have the right to represent the multitudes who have perished? Do I have the right to accept this great honor on their behalf? I do not. No one may speak for the dead, no one may interpret their mutilated dreams and visions. And yet, I sense their presence. I always do - and at this moment more than ever. The presence of my parents, that of my little sister. The presence of my teachers, my friends, my companions...

This honor belongs to all the survivors and their children and, through us to the Jewish people with whose destiny I have always identified.

I remember: it happened yesterday, or eternities ago. A young Jewish boy discovered the Kingdom of Night. I remember his bewilderment, I remember his anguish. It all happened so fast. The ghetto. The deportation. The sealed cattle car. The fiery altar upon which the history of our people and the future of mankind were meant to be sacrificed.

I remember he asked his father: “Can this be true? This is the twentieth century, not the Middle Ages. Who would allow such crimes to be committed? How could the world remain silent?”

And now the boy is turning to me. “Tell me,” he asks, “what have you done with my future, what have you done with your life?” And I tell him that I have tried. That I have tried to keep memory alive, that I have tried to fight those who would forget. Because if we forget, we are guilty, we are accomplices.

And then I explain to him how naïve we were, that the world did know and remained silent. And that is why I swore never to be silent whenever wherever human beings endure suffering and humiliation. We must take sides. Neutrality helps the oppressor, never the victim. Silence encourages the tormentor, never the tormented. Sometimes we must interfere. When human lives are endangered, when human dignity is in jeopardy, national borders and sensitivities become irrelevant. Wherever men and women are persecuted because of their race, religion, or political views, that place must— at that moment—become the center of the universe.


*From “Ronald Reagan: Speech at Moscow State University”*

But progress is not foreordained. The key is freedom—freedom of thought, freedom of information, freedom of communication. The renowned scientist, scholar, and founding father of this university, Mikhail Lomonosov, knew that. “It is common knowledge,” he said, “that the achievements of science are considerable and rapid, particularly once the yoke of slavery is cast off and replaced by the freedom of philosophy.” [...]

The explorers of the modern era are the entrepreneurs, men with vision, with the courage to take risks and faith enough to brave the unknown. These entrepreneurs and their small enterprises are responsible for almost all the economic growth in the United States. They are the prime movers of the technological revolution. In fact, one of the largest personal computer firms in the United States was started by two college students, no older than you, in the garage behind their home. Some people, even in my own country, look at the riot of experiment that is the free market and see only waste. What of all the entrepreneurs that fail? Well, many do, particularly the successful ones; often several times. And if you ask them the secret of their success, they’ll tell you it’s all that they learned in their struggles along the way; yes, it’s what they learned from failing. Like an athlete in competition or a scholar in pursuit of the truth, experience is the greatest teacher. […]

We Americans make no secret of our belief in freedom. In fact, it’s something of a national pastime. Every 4 years the American people choose a new President, and 1988 is one of those years. At one point there were 13 major candidates running in the two major parties, not to mention all the others, including the Socialist and Libertarian candidates—all trying to get my job.

About 1,000 local television stations, 8,500 radio stations, and 1,700 daily newspapers—each one an independent, private enterprise, fiercely independent of the Government—report on the candidates, grill them in interviews, and bring them together for debates. In the end, the people vote; they decide who will be the next President.

But freedom doesn’t begin or end with elections. Go to any American town, to take just an example, and you’ll see dozens of churches, representing many different beliefs—in many places, synagogues and mosques—and you’ll see families of every conceivable nationality worshiping together. Go into any schoolroom, and there you will see children being taught the Declaration of Independence, that they are endowed by their Creator with certain unalienable rights—among them life, liberty, and the pursuit of happiness—that no government can justly deny; the guarantees in their Constitution for freedom of speech, freedom of assembly, and freedom of religion.

Go into any courtroom, and there will preside an independent judge, beholden to no government power. There every defendant has the right to a trial by a jury of his peers, usually 12 men and women—common citizens; they are the ones, the only ones, who weigh the evidence and decide on guilt or innocence. In that court, the accused is innocent until proven guilty, and the word of a policeman or any official has no greater legal standing than the word of the accused.

Go to any university campus, and there you’ll find an open, sometimes heated discussion of the problems in American society and what can be done to correct them. Turn on the television, and you’ll see the legislature conducting the business of government right there before the camera, debating and voting on the legislation that will become the law of the land. March in any demonstration, and there are many of them; the people’s right of assembly is guaranteed in the Constitution and protected by the police. Go into any union hall, where the members know their right to strike is protected by law.

But freedom is more even than this. Freedom is the right to question and change the established way of doing things. It is the continuing revolution of the marketplace. It is the understanding that allows us to recognize shortcomings and seek solutions. It is the right to put forth an idea, scoffed at by the experts, and watch it catch fire among the people. It is the right to dream—to follow your dream or stick to your conscience, even if you’re the only one in a sea of doubters. Freedom is the recognition that no single person, no single authority or government has a monopoly on the truth, but that every individual life is infinitely precious, that every one of us put on this world has been put there for a reason and has something to offer.


America is an improbable idea. A mongrel nation built of ever-changing disparate parts, it is held together by a notion, the notion that all men are created equal, though everyone knows that most men consider themselves better than someone. “Of all the nations in the world, the United States was built in nobody’s image,” the historian Daniel Boorstin wrote. That’s because it was built of bits and pieces that seem discordant, like the crazy quilts that have been one of its great folk-art forms, velvet and calico and checks and brocades. Out of many, one. That is the ideal.

Sample Performance Tasks for Informational Texts: English Language Arts

- Students compare George Washington’s Farewell Address to other foreign policy statements, such as the Monroe Doctrine, and analyze how both texts address similar themes and concepts regarding “entangling alliances.” [RI.9–10.9]
• Students analyze how Abraham Lincoln in his “Second Inaugural Address” unfolds his examination of the ideas that led to the Civil War, paying particular attention to the order in which the points are made, how Lincoln introduces and develops his points, and the connections that are drawn between them. [RI.9-10.3]

• Students evaluate the argument and specific claims about the “spirit of liberty” in Learned Hand’s “I Am an American Day Address,” assessing the relevance and sufficiency of the evidence and the validity of his reasoning. [RI.9-10.8]

• Students determine the purpose and point of view in Martin Luther King, Jr.’s, “I Have a Dream” speech and analyze how King uses rhetoric to advance his position. [RI.9-10.6]

Informational Texts: History/Social Studies


*From Chapter 1: “Their Manners Are Decorous and Praiseworthy”*

The decade following establishment of the “permanent Indian frontier” was a bad time for the eastern tribes. The great Cherokee nation had survived more than a hundred years of the white man’s wars, diseases, and whiskey, but now it was to be blotted out. Because the Cherokees numbered several thousands, their removal to the West was planned to be in gradual stages, but the discovery of Appalachian gold within their territory brought on a clamor for their immediate wholesale exodus. During the autumn of 1838, General Winfield Scott’s soldiers rounded them up and concentrated them into camps. (A few hundred escaped to the Smoky Mountains and many years later where given a small reservation in North Carolina.) From the prison camps they were started westward to Indian Territory. On the long winter trek, one of every four Cherokees died from the cold, hunger, or disease. They called the march their “trail of tears.” The Choctaws, Chickasaws, Creeks, and Seminoles also gave up their homelands in the South. In the North, surviving remnants of the Shawnees, Miamis, Ottawas, Hurons, Delawares, and many other once mighty tribes walked or traveled by horseback and wagon beyond the Mississippi, carrying their shabby goods, their rusty farming tools, and bags of seed corn. All of them arrived as refugees, poor relations, in the country of the proud and free Plains Indians.

Scarceley were the refugees settled behind the security of the “permanent Indian frontier” when soldiers began marching westward through Indian country. The white men of the United States—who talked so much of peace but rarely seemed to practice it—were marching to war with the white men who had conquered the Indians of Mexico. When the war with Mexico ended in 1847, the United States took possession of a vast expanse of territory reaching from Texas to California. All of it was west of the “permanent Indian frontier.”


Sitting Bull. Sitting Bull.

In English this name sounds a little absurd, and to whites of the nineteenth century is was still more so; they alluded to him as Slightly Recumbent Gentleman Cow.

Exact Translation from the Sioux is impossible, but his name may be better understood if one realizes how plains Indians respected and honored the bull buffalo. Whites considered this animal to be exceptionally stupid. Col. Dodge states without equivocation that the buffalo is the dullest creature of which he has any knowledge. A herd of buffalo would graze complacently while every member was shot down. He himself shot two cows and thirteen calves while the survivors grazed and watched. He and others in his party to shout and wave their hats to drive the herd away so the dead animals could be butchered.

Indians, however, regarded buffalo as the wisest and most powerful of creatures, nearest to the omnipresent Spirit. Furthermore if one says in English that somebody is sitting it means he is seated, balanced on the haunches; but the Sioux expression has an additional sense, not equivalent to but approximating the English words situate and locate and reside.

Thus from an Indian point of view, the name Sitting Bull signified a wise and powerful being who had taken up residence among them.

As a boy, he was called Slow, Hunkesni, because of his deliberate manner, and it has been alleged that his parents
thought him ordinary, perhaps even a bit slow in the head. Most biographies state that he was known also as Jumping Badger; but Stanley Vestal, after talking to many Indians who knew his, said that none of them nor any member of Sitting Bull's family could remember his being called Jumping Badger. In any event, Slow he was called, and Slow would suffice until he distinguished himself.

From Chapter 27: "Experimental Art: The First Half of the Twentieth Century"

In one of his letters to a young painter, Cézanne had advised him to look at nature in terms of spheres, cones and cylinders. He presumably meant that he should always keep these basic solid shapes in mind when organizing his pictures. But Picasso and his friends decided to take this advice literally. I suppose that they reasoned somewhat like this: 'We have long given up claiming that we represent things as they appear to our eyes. That was a will-o’-the-wisp which it is useless to pursue. We do not want to fix on the canvas the imaginary impression of a fleeting moment. Let us follow Cézanne’s example, and build up the picture of our motifs as solidly and enduringly as we can. Why not be consistent and accept the fact that our real aim is rather to construct something, rather than to copy something? If we think of an object, let us say a violin, it does not appear before the eye of our mind the way it would appear before our bodily eyes. We can, and in fact do, think of its various aspects at the same time. Some of them stand out so clearly that we feel we can touch them and handle them; others are somehow blurred. And this strange medley of images represents more of the “real” violin than any single snapshot or meticulous painting could ever contain.' This, I suppose, was the reasoning which led to such paintings as Picasso’s still life of a violin, figure 374. In some respects, it represents a return to what we have called Egyptian principles, in which an object was drawn from the angle from which its characteristic form came out most clearly.

[Figure 374]
Pablo Picasso, Violin and Grapes, 1912
Oil on canvas, 50.6 x 61 cm, 20 x 24 in;
The Museum of Modern Art, New York
Mrs. David M. Levy Bequest

From Chapter 1: “The Race to Codlandia”

A medieval fisherman is said to have hauled up a three-foot-long cod, which was common enough at the time. And the fact that the cod could talk was not especially surprising. But what was astonishing was that it spoke an unknown language. It spoke Basque.

This Basque folktale shows not only the Basque attachment to their orphan language, indecipherable to the rest of the world, but also their tie to the Atlantic cod, *Gadus morhua*, a fish that has never been found in Basque or even Spanish waters.

The Basques are enigmatic. They have lived in what is now the northwest corner of Spain and a nick of the French southwest for longer than history records, and not only is the origin of their language unknown, but also the origin of the people themselves remains a mystery also. According to one theory, these rosy-cheeked, dark-haired, long-nosed people where the original Iberians, driven by invaders to this mountainous corner between the Pyrenees, the Cantabrian Sierra, and the Bay of Biscay. Or they may be indigenous to this area.

They graze sheep on impossibly steep, green slopes of mountains that are thrilling in their rare, rugged beauty. They sing their own songs and write their own literature in their own language, Euskera. Possibly Europe’s oldest living language, Euskera is one of only four European languages—along with Estonian, Finnish, and Hungarian—not in the Indo-European family. They also have their own sports, most notably jai alai, and even their own hat, the Basque beret, which is bigger than any other beret.

From “Introduction: A ‘White Man’s War?’”

In 1775 the first shots were fired in the war between the thirteen American colonies and Great Britain that ended in a victory for the colonists and the founding of a new nation, the United States of America. Only eighty-five years later, in 1861, the first shots were fired in a different war—a war between the states that became known as the Civil War. It was a war fought between the Confederate States of America and the states that remained in the Union—each side representing a distinct economy, labor system, and philosophy of government. The southern states that formed the Confederacy had agricultural economies that depended on a slave workforce and believed that any rights not granted to the federal government by the United States Constitution belonged to the states. The northern states were undergoing rapid industrialization, which depended on wage labor, and while northerners disagreed among themselves about slavery, most believed it represented a direct challenge to their own rights and freedoms. Most also believed
that a strong federal government, with the ability to legislate behavior in areas not specifically set forth in the Constitution, was key to the growth and strength of the American republic. It was inevitable that these two very distinct societies would clash. For the Unionists, nicknamed Yankees, it was a war to preserve the Union that had been so dearly won in the American Revolution.

In the eyes of the four and an half million African Americans, enslaved and free, it was a war about slavery; and they wanted to be part of the fight. But many northern whites did not want blacks to serve in the northern military. They called it a “white man’s war” and said that slavery was not the main point of the conflict. At first, northern generals actually sent escaped slaves back to their southern masters. Eventually, the Union did accept blacks into its army and navy.

A total of 178,895 black men served in 120 infantry regiments, twelve heavy artillery regiments, ten light artillery batteries, and seven cavalry regiments. Black soldiers constituted twelve percent of the North’s fighting forces, and they suffered a disproportionate number of casualties.

From Chapter 1: “A Most Terrible Sea”

At six in the morning I was awaked by a great shock, and a confused noise of the men on deck. I ran up, thinking some ship had run foul of us, for by my own reckoning, and that of every other person in the ship, we were at least thirty-five leagues distant from land; but, before I could reach the quarter-deck, the ship gave a great stroke upon the ground, and the sea broke over her. Just after this I could perceive the land, rocky, rugged and uneven, about two cables’ length from us...the masts soon went overboard, carrying some men with them...notwithstanding a most terrible sea, one of the [lifeboats] was launched, and eight of the best men jumped into her; but she had scarcely got to the ship’s stern when she was hurled to the bottom, and every soul in her perished. The rest of the boats were soon washed to pieces on the deck. We then made a raft...and waited with resignation for Providence to assist us.

—From an account of the wreck of HMS Litchfield off the coast of North Africa, 1758

The Litchfield came to grief because no one aboard knew where they were. As the narrator tells us, by his own reckoning, and that of every other person in the ship, we were at least thirty-five leagues distant from land; but, before I could reach the quarter-deck, the ship gave a great stroke upon the ground, and the sea broke over her. Just after this I could perceive the land, rocky, rugged and uneven, about two cables’ length from us...the masts soon went overboard, carrying some men with them...notwithstanding a most terrible sea, one of the [lifeboats] was launched, and eight of the best men jumped into her; but she had scarcely got to the ship’s stern when she was hurled to the bottom, and every soul in her perished. The rest of the boats were soon washed to pieces on the deck. We then made a raft...and waited with resignation for Providence to assist us.

From “Composition through the Ages”

Music as a Language Music as a language is the most mysterious of all art forms. People who can easily come to terms with a work of literature or a painting are still often baffled by the process by which a piece of music – appearing in material form as notation – must then be translated back into sound through the medium of a third party – the performer. Unlike a painting, a musical composition cannot be owned (except by its creator); and although a score may be published, like a book, it may remain incomprehensible to the general public until it is performed. Although a piece may be played thousands of times each repetition is entirely individual, and interpretations by different players may vary widely.

Origins of musical notation The earliest musical compositions were circumscribed by the range of the human voice. People from all cultures have always sung, or used primitive instruments to make sounds. Notation, or the writing down of music, developed to enable performers to remember what they had improvised, to preserve what they had
created, and to facilitate interaction between more than one performer. Musical notation, like language, has ancient origins, dating back to the Middle East in the third millennium BC. The ancient Greeks appear to have been the first to try to represent variations of musical pitch through the medium of the alphabet, and successive civilizations all over the world attempted to formulate similar systems of recognizable musical notation.

Neumatic notation The earliest surviving Western European notational system was called “neumatic notation”—a system of symbols which attempted to portray the rise and fall of a melodic line. These date back to the 9th century AD, and were associated with the performance of sacred music particularly plainsong—in monastic institutions. Several early manuscript sources contain sacred texts with accompanying notation, although there was no standard system. The first appearance of staff notation, in which pitch was indicated by noteheads on or between lines with a symbol called a clef at the beginning to fix the pitch of one note, was in the 9th century French treatise Musica enchiriadis. At the same time music for instruments (particularly organ and lute) was beginning to be written down in diagrammatic form known as tablature, which indicated the positions of the player’s fingers.

From Chapter 2

If you asked modern scientists to name the world’s greatest achievements in genetic engineering, you might be surprised by one of their low-tech answers: maize.

Scientists know that maize, called “corn” in the United States, was created more than 6,000 years ago. Although exactly how this well-known plant was invented is still a mystery, they do know where it was invented—in the narrow “waist” of southern Mexico. This jumble of mountains, beaches, wet tropical forests, and dry plains is the most ecologically diverse part of Mesoamerica. Today it is the home of more than a dozen different Indian groups, but the human history of these hills and valleys stretches far into the past.

From Hunting to Gathering to Farming

About 11,500 years ago a group of Paleoindians was living in caves in what is now the Mexican state of Puebla. These people were hunters, but they did not bring down mastodons and mammoths. Those huge species were already extinct. Now and then they even feasted on giant turtles (which were probably a lot easier to catch than the fast-moving deer and rabbits.)

Over the next 2,000 years, though, game animals grew scarce. Maybe the people of the area had been too successful at hunting. Maybe, as the climate grew slowly hotter and drier, the grasslands where the animals lived shrank, and so the animal populations shrank, as well. Perhaps the situation was a combination of these two reasons. Whatever the explanation, hunters of Puebla and the neighboring state of Oaxaca turned to plants for more of their food.

Informational Texts: Science, Mathematics, and Technical Subjects

From Elements, Book 1

Definitions
1. A point is that of which there is no part.
2. And a line is a length without breadth.
3. And the extremities of a line are points.
4. A straight-line is whatever lies evenly with points upon itself.
5. And a surface is that which has length and breadth alone.
6. And the extremities of a surface are lines.
7. A plane surface is whatever lies evenly with straight-lines upon itself.
8. And a plane angle is the inclination of the lines, when two lines in a plane meet one another, and are not laid down straight-on with respect to one another.

9. And when the lines containing the angle are straight then the angle is called rectilinear.

10. And when a straight-line stood upon (another) straight-line makes adjacent angles (which are) equal to one another, each of the equal angles is a right-angle, and the former straight-line is called perpendicular to that upon which it stands.

11. An obtuse angle is greater than a right-angle.

12. And an acute angle is less than a right-angle.

13. A boundary is that which is the extremity of something.

14. A figure is that which is contained by some boundary or boundaries.

15. A circle is a plane figure contained by a single line (which is called a circumference), (such that) all of the straight-lines radiating towards [the circumference] from a single point lying inside the figure are equal to one another.

16. And the point is called the center of the circle.

17. And a diameter of the circle is any straight-line, being drawn through the center, which is brought to an end in each direction by the circumference of the circle. And any such (straight-line) cuts the circle in half.

18. And a semi-circle is the figure contained by the diameter and the circumference it cuts off. And the center of the semi-circle is the same (point) as the (center of) the circle.

19. Rectilinear figures are those figures contained by straight-lines: trilateral figures being contained by three straight-lines, quadrilateral by four, and multilateral by more than four.

20. And of the trilateral figures: an equilateral triangle is that having three equal sides, an isosceles (triangle) that having only two equal sides, and a scalene (triangle) that having three unequal sides.

21. And further of the trilateral figures: a right-angled triangle is that having a right-angle, an obtuse-angled (triangle) that having an obtuse angle, and an acute-angled (triangle) that having three acute angles.

22. And of the quadrilateral figures: a square is that which is right-angled and equilateral, a rectangle that which is right-angled but not equilateral, a rhombus that which is equilateral but not right-angled, and a rhomboid that having opposite sides and angles equal to one another which is neither right-angled nor equilateral. And let quadrilateral figures besides these be called trapezia.

23. Parallel lines are straight-lines which, being in the same plane, and being produced to infinity in each direction, meet with one another in neither (of these directions).

Postulates

1. Let it have been postulated to draw a straight-line from any point to any point.

2. And to produce a finite straight-line continuously in a straight-line.

3. And to draw a circle with any center and radius.

4. And that all right-angles are equal to one another.

5. And that if a straight-line falling across two (other) straight-lines makes internal angles on the same side (of itself) less than two right-angles, being produced to infinity, the two (other) straight-lines meet on that side (of the original straight-line) that the (internal angles) are less than two right-angles (and do not meet on the other side).

Common Notions

1. Things equal to the same thing are also equal to one another.

2. And if equal things are added to equal things then the wholes are equal.
3. And if equal things are subtracted from equal things then the remainders are equal.

4. And things coinciding with one another are equal to one another.

5. And the whole [is] greater than the part.

**Proposition 1**

To construct an equilateral triangle on a given finite straight-line.

Let AB be the given finite straight-line.

So it is required to construct an equilateral triangle on the straight-line AB.

Let the circle BCD with center A and radius AB have been drawn [Post. 3], and again let the circle ACE with center B and radius BA have been drawn [Post. 3]. And let the straight-lines CA and CB have been joined from the point C, where the circles cut one another, to the points A and B (respectively) [Post. 1].

And since the point A is the center of the circle CDB, AC is equal to AB [Def. 1.15]. Again, since the point B is the center of the circle CAE, BC is equal to BA [Def. 1.15]. But CA was also shown to be equal to AB. Thus, CA and CB are each equal to AB. Thus, CA is also equal to CB. Thus, the three (straight-lines) CA, AB, and BC are equal to one another.

Thus, the triangle ABC is equilateral, and has been constructed on the given finite straight-line AB. (Which is) the very thing it was required to do.

**Media Text**

Translator Robert Fitzpatrick’s complete version of Euclid’s Elements of Geometry, in bookmarked PDF form, with side-by-side Greek and English text:

http://farside.ph.utexas.edu/euclid/Elements.pdf

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Sunlight and starlight are composed of waves of various lengths, which the eye, even aided by a telescope, is unable to separate. We must use more than a telescope. In order to sort out the component colors, the light must be dispersed by a prism, or split up by some other means. For instance, sunbeams passing through rain drops, are transformed into the myriad-tinted rainbow. The familiar rainbow spanning the sky is Nature’s most glorious demonstration that light is composed of many colors.

The very beginning of our knowledge of the nature of a star dates back to 1672, when Isaac Newton gave to the world the results of his experiments on passing sunlight through a prism. To describe the beautiful band of rainbow tints, produced when sunlight was dispersed by his three-cornered piece of glass, he took from the Latin the word spectrum, meaning an appearance. The rainbow is the spectrum of the Sun.
In 1814, more than a century after Newton, the spectrum of the Sun was obtained in such purity that an amazing detail was seen and studied by the German optician, Fraunhofer. He saw that the multiple spectral tints, ranging from delicate violet to deep red, were crossed by hundreds of fine dark lines. In other words, there were narrow gaps in the spectrum where certain shades were wholly blotted out.

We must remember that the word spectrum is applied not only to sunlight, but also to the light of any glowing substance when its rays are sorted out by a prism or a grating.


The birth began in a young star. A young star is a mass of hydrogen nuclei. Because the star is hot (about thirteen million degrees at the center), the nuclei cannot hold on to their electrons. The electrons wander around. The nuclei of hydrogen—that is, the protons—are moving about very fast too. From time to time one proton runs headlong into another. When this happens, one of the protons loses its electric charge and changes into a neutron. The pair then cling together as a single nucleus of heavy hydrogen. This nucleus will in time capture another proton. Now there is a nucleus with two protons and one neutron, called light helium. When two of these nuclei smash into each other, two protons are expelled in the process. This creates a nucleus of helium with two protons and two neutrons.

This is the fundamental process of fusion by which the primitive hydrogen of the universe is built up into a new basic material, helium. In this process, energy is given off in the form of heat and light that make the stars shine. It is the first stage in the birth of the heavier atoms.


From “Amusement Park Physics: Thinking About Physics While Scared to Death (on a Falling Roller Coaster)”

The rides in an amusement park not only are fun but also demonstrate principles of physics. Among them are rotational dynamics and energy conversion. I have been exploring the rides at Geauga Lake Amusement Park near Cleveland and have found that nearly every ride offers a memorable lesson.

To me the scariest rides at the park are the roller coasters. The Big Dipper is similar to many of the roller coasters that have thrilled passengers for most of this century. The cars are pulled by chain to the top of the highest hill along the track. Released from the chain as the front of the car begins its descent, the unpowered cars have almost no speed and only a small acceleration. As more cars get onto the downward slope the acceleration increases. It peaks when all the cars are heading downward. The peak value is the product of the acceleration generated by gravity and the sine of the slope of the track. A steeper descent generates a greater acceleration, but packing the coaster with heavier passengers does not.

When the coaster reaches the bottom of the valley and starts up the next hill, there is an instant when the cars are symmetrically distributed in the valley. The acceleration is zero. As more cars ascend the coaster begins to slow, reaching its lowest speed just as it is symmetrically positioned at the top of the hill.

A roller coaster functions by means of transfers of energy. When the chain hauls the cars to the top of the first hill, it does work on the cars, endowing them with gravitational potential energy, the energy of a body in a gravitational field with respect to the distance of the body from some reference level such as the ground. As the cars descend into the first valley, much of the stored energy is transferred into kinetic energy, the energy of motion.


From “Something in the Forest”

1980 New Year’s Day

Charles Monet was a loner. He was a Frenchman who live by himself in a little wooden bungalow on the private lands of the Nzoia Sugar Factory, a plantation in western Kenya that spread along the Nzoiz Rover within sight of Mount Elgon, a huge, solitary, extinct volcano that rises to a height of fourteen thousand feet near the edge of the Rift Valley. Monet’s history is a little obscure. As with so many expatriates who end up in Africa, it is not clear what brought him there. Perhaps he had been in some kind of trouble in France. Or perhaps he had been drawn to Kenya by the beauty of the country. He was an amateur naturalist, fond of birds and animals but not of humanity in general. He was fifty-six years old, of medium height and medium build with smooth, straight brown hair; a good-looking man. It seems that his only close friends were women who lived in towns around the mountain, yet even they could not recall much about him for the doctors who investigated his death. His job was to take care of the sugar factory’s water-pumping machinery, which drew water from the Nzoia River and delivered it to many miles of sugar-cane fields. They say that
he spent most of his day inside the pump house by the river as if it pleased him to watch and listen to the machines doing their work.

From Chapter 3: “Patterns of Nature”

Though animals come in many shapes and sizes, there are definite limits on the possible size of an animal of a particular shape. King Kong simply could not exist, for instance. As Labarbara has calculated, if you were to take a gorilla and blow it up to the size of King Kong, its weight would increase by more than 14,000 times but the size of its bones would increase by only a few hundred times. Kong’s bones would simply not be able to support his body. He would collapse under his own weight!

And the same is true for all those giant locusts, giant ants, and the like. Imagining giants—giant people, giant animals, or giant insects—might prove the basis for an entertaining story, but the rules of science say that giants could not happen. You can’t have a giant anything. If you want to change size, you have to change to overall design.

The reason is quite simple. Suppose you double the height (or length) of any creature, say, a gorilla. The weight will increase 8 times (i.e., 2 cubed), but the cross section of the bones will increase only fourfold (2 squared). Or, if you increase the height of the gorilla 10 times, the weight will increase, 1,000 times (10 cubed), but the cross-sectional area of the bones will increase only 100 times (10 squared). In general, when you increase the height by a certain factor, the weight will increase by the cube of that factor but the cross section of the bone will increase only by the square of that factor.


Probability, a branch of mathematics, began with gambling. Pierre de Fermat (of the famous Last Theorem), Blaise Pascal, and the Bernoullis wanted to know the mathematical odds of winning at the card table. Probability didn’t tell them for certain that they would or wouldn’t draw an ace; it just told them how likely it was. A deck of 52 cards has 4 aces, so the odds of the first drawn card being an ace are 4 in 52 (or 1 in 13).

If 20 cards have been played and not an ace among them, those odds improve to 4 in 32 (1 in 8). Always keep in mind that probability is about the likelihood of outcomes, not the certainty. If there are only 4 cards left in the deck, and no aces have been played, you can predict with certainty that the next card will be an ace—but you’re not using probability; you’re using fact. Probability is central to the physics that deals with the complex world inside atoms. We can’t determine the action of an individual particle, but with a large number of atoms, predictions based on probability become very accurate.


From “The Astrolabe”

The astrolabe (in Greek, “star reckoner”) is a manual computing and observation device with myriad uses in astronomy, time keeping, surveying, navigation, and astrology. The principles behind the most common variety, the planispheric astrolabe, were first laid down in antiquity by the Greeks, who pioneered the notion of projecting three-dimensional images on flat surfaces. The device reached a high degree of refinement in the medieval Islamic world, where it was invaluable for determining prayer times and the direction of Mecca from anywhere in the Muslim world. The astrolabe was introduced to Europe by the eleventh century, where it saw wide use until the Renaissance.

The fundamental innovation underlying the astrolabe was the projection of an image of the sky (usually the northern hemisphere, centered on Polaris) on a plane corresponding to the earth’s equator. This image, which was typically etched on a brass plate, was inserted into a round frame (the mater) whose circumference was marked in degrees or hours. Over the plate was fitted a lattice-work disk, the rete, with pointers to indicate the positions of major stars. A metal hand, similar to those on a clock, was hinged with the rete at the center of the instrument, as was a sighting vane (the alidade) for determining the angular height of the stars or other features, such as mountaintops. The entire device was usually not more than six to eight inches in diameter and half an inch thick.

One common use of the astrolabe was to determine the time of day, even after dark.

Other uses included determination of sunrise, and sunset times for any date past or future, predicting eclipses, finding important stars or constellations, and measuring the height of earthbound objects and the circumference of the earth. For this and other reasons, the astrolabe has been called “the world’s first personal computer.”
Recommended Levels of Insulation

Insulation level are specified by R-Value. R-Value is a measure of insulation’s ability to resist heat traveling through it. The higher the R-Value the better the thermal per

<table>
<thead>
<tr>
<th>Zone</th>
<th>Add Insulation to Attic</th>
<th>Floor</th>
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<tbody>
<tr>
<td></td>
<td>Uninsulated Attic</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>R30 to R49</td>
<td>R25 to R30</td>
</tr>
<tr>
<td>2</td>
<td>R30 to R60</td>
<td>R25 to R38</td>
</tr>
<tr>
<td>3</td>
<td>R30 to R60</td>
<td>R25 to R38</td>
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<tr>
<td>4</td>
<td>R38 to R60</td>
<td>R38</td>
</tr>
<tr>
<td>5 to 8</td>
<td>R49 to R60</td>
<td>R38 to R49</td>
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</tbody>
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Wall Insulation: Whenever exterior siding is removed on an

Uninsulated wood-frame wall:

- Drill holes in the sheathing and blow insulation into the empty wall cavity before installing the new siding, and
- Zones 3–4: Add R5 insulative wall sheathing beneath the new siding
- Zones 5–8: Add R5 to R6 insulative wall sheathing beneath the new siding.

Insulated wood-frame wall:

- For Zones 4 to 8: Add R5 insulative sheathing before installing the new siding.

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

- Students compare the similarities and differences in point of view in works by Dee Brown and Evan Connell regarding the Battle of Little Bighorn, analyzing how the authors treat the same event and which details they include and emphasize in their respective accounts. [RH.9–10.6]

- Students analyze the role of African American soldiers in the Civil War by comparing and contrasting primary source materials against secondary syntheses such as Jim Haskins’s Black, Blue and Gray: African Americans in the Civil War. [RH.9–10.9]

- Students determine the meaning of words such as quadrant, astrolabe, equator, and horizon line in Joan Dash’s The Longitude Prize as well as phrases such as dead reckoning and sailing the parallel that reflect social aspects of history. [RH.9–10.4]

- Students cite specific textual evidence from Annie J. Cannon’s “Classifying the Stars” to support their analysis of the scientific importance of the discovery that light is composed of many colors. Students include in their analysis precise details from the text (such as Cannon’s repeated use of the image of the rainbow) to buttress their explanation. [RST.9–10.1].

- Students determine how Jearl Walker clarifies the phenomenon of acceleration in his essay “Amusement Park Physics,” accurately summarizing his conclusions regarding the physics of roller coasters and tracing how sup-