Maine's Common Core of Learning

An investment in Maine's future

... to provide an education adapted to the years, to the capacity, and the condition of every one, and directed to their freedom and happiness.

— THOMAS JEFFERSON
NOTES ON THE STATE OF VIRGINIA, 1787


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Maine's Common Core of Learning challenges traditional beliefs about students and schooling. It is a statement of the knowledge, skills, and attitudes that all Maine students should have when they graduate from high school.

Traditionally, schools have been considered separate from society and the focus has been on their inadequacies. The current societal demands placed upon our educational system, however, highlight the reality that the schools cannot be viewed as separate — they are an integral part of the society in which they exist.

While the *Common Core of Learning* articulates a common vision for education in Maine, we all have an obligation to identify the roles we can play in transforming education from what it is to what it could be.

The Commission on Maine's Common Core of Learning calls on students, educators, parents, citizens, government officials, and all other Maine people to carry out the vision and potential embodied in this document.

TABLE OF CONTENTS

Commission on Maine's Common Core of Learning

July 31, 1990

Dear Governor McKernan:

On behalf of the Commission on Maine's Common Core of Learning, I am pleased to send you *Maine's Common Core of Learning: An Investment in Maine's Future.* Your executive order charged us with defining the knowledge, skills, and attitudes that all Maine students should have upon their graduation from high school. For the past sixteen months, Commission members have explored the various subject areas and the skills and attitudes that will be essential for meeting the demands of life in the twenty-first century. Our conclusions form the body of *Maine's Common Core of Learning.*

We know that the process of improving schools is complicated and takes continuous attention and effort. The members of the Commission believe that *Maine's Common Core of Learning* will assist school improvement efforts by offering educational outcomes that will help focus the discussions and efforts of educators, parents, and other community members.

Finally, the members of the Commission on Maine's Common Core of Learning thank you for the opportunity to serve on the Commission. All of us have gained a greater insight into the issues confronting our state and the importance of changing schools to prepare Maine students to meet the new demands of the twenty-first century. We have also learned about the power of working collaboratively to address a challenge facing our great State of Maine.

Sincerely,

Denison Gallaudet
Chair

STATE OF MAINE
OFFICE OF THE GOVERNOR
AUGUSTA, MAINE
04333

JOHN R. McKERNAN, JR.
GOVERNOR

August 1, 1990

To the Members of the Commission on Maine's Common Core of Learning:

It is with great pleasure that I accept from you *Maine's Common Core of Learning: An Investment in Maine's Future.* I know how hard you have worked to produce this document, and I commend you for your dedication and perseverance in this undertaking.

The residents of Maine are increasingly aware that our educational system must prepare students to meet unprecedented societal and economic demands. To do so, all students must have the knowledge, skills, and attitudes that you have outlined in *Maine's Common Core of Learning.*

The work of your Commission has provided an important first step in meeting the challenges we face as individuals and as a society. You have set forth outcomes by which we can establish where we are and a vision toward which we must strive.

On behalf of the people of the State of Maine, please accept my thanks for your contribution to improving the education of children in our state.

Sincerely,

John R. McKernan, Jr.
Governor

THE COMMISSION

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THE COMMISSION'S JOURNEY

Since February 1989, the members of the Commission on Maine's Common Core of Learning have been on an educational journey. We began as a group of forty-five individuals from all walks of life and have evolved into a community of learners. We read widely, listened to and read about the current issues in each content area, and processed letters and public comment from eight regional forums. We listened to our thirty-eight student readers from three high schools. Debate and discussion of issues led us gradually to agreement about the knowledge, skills, and attitudes Maine students need by the time they graduate from high school. In defining this common core, we found it arranged itself in a way that will challenge Maine residents to reconsider how curriculum is organized and how schools are structured. Consequently, our report has the potential to revolutionize the way Maine students are educated.

Our early meetings focused on what skills and attitudes graduating high school students should possess to be productive citizens, what will be essential for them to know considering the demands the twenty-first century will place on them as adults. We heard reports on the current profile of Maine high school students and from the Maine Aspirations Compact, Human Resources Development Council, and the Commission on Maine's Future.

In later meetings, we listened as leaders in each of the subject areas presented current thought and research about those areas. This helped us add specificity to our base. As we gained insight into each subject, we began to see commonalities among them — knowledge, skills, and attitudes that overlapped the areas. When we viewed the concepts in this way, we found a dimension not seen when any one subject area was viewed in isolation.

We want our students to have this same view, to acquire the fundamental and specific aspects of each subject area and be able to integrate this knowledge to see the world as a multi-faceted whole.

WHY WILL IT BE NECESSARY TO EDUCATE MAINE STUDENTS DIFFERENTLY FOR THE TWENTY-FIRST CENTURY?

. . . the democratic promise of equal educational opportunity, half fulfilled, is worse than a promise broken. It is an ideal betrayed. — MORTIMER J. ADLER[1]

Within the last forty-eight hours, in the towns, villages, and cities throughout Maine, approximately one hundred new Maine citizens have been born. They have entered a state rich in natural beauty and resources, a place remote in geography, yet inextricably linked to other parts of the nation and the world by technology.

We welcome these youngsters with a willingness to share the way of life we have known in Maine, yet with the realization that the economic and technological terrain of our state is changing rapidly. These children will enter the work force of the twenty-first century. Most of them will grow up to assume jobs that do not yet exist,[2] jobs that will be reshaped or invented to accommodate fast-paced technological development. They need the knowledge, skills, and attitudes that will prepare them to provide for themselves and others and will give them a future of options — personal and work related — in Maine and in the world at large. We, the residents of Maine, offer these children the promise of an education to help them achieve fulfilling work and to act responsibly in an increasingly complex society.

Current evidence suggests that some of our one hundred children will have little difficulty realizing our educational promise. Others, however, will be at risk — unable to give what is demanded by the conditions in our rapidly-changing world. Our promise to these children will be broken if schools do not prepare them for a lifetime of choices.

We ... offer these children the promise of an education to help them achieve fulfilling work and to act responsibly in an increasingly complex society.

The challenges awaiting these children are not just economic. Their lives will be affected by global concerns of interdependent societies and cultures. These children will need to develop judgment, personal responsibility, and a sense of ethics as world citizens.

Maine, along with other areas of the United States and Canada, is faced with such intensifying environmental concerns as solid waste disposal and the effects of acid rain upon our timberlands. Many

nations have serious air, water, and land pollution. Our children, as part of the world community, will need to contend with these issues as well as the growing impact of the ozone depletion, global warming, and the destruction of tropical rain forests.

Our biotechnical wizardry, which will have saved several of our hundred children from starvation and such deadly diseases as smallpox, has created a host of moral and ethical problems for them. With a greater ability to control life itself, these children, as adults, will face such increasingly urgent questions as the right to die, the custody of frozen embryos, and the soaring national cost of health care. They will need to respond to the threat of nuclear weapons and nuclear waste, as well as to critical challenges like the AIDS pandemic, issues that will require scientific and political expertise from some and commitment and spiritual depth from all.

Changing social factors at home will also affect the development of our hundred new Mainers. If current statistics hold, sixty of them will live in a home with only one parent by the time they are eighteen, many will spend large portions of time in child-care facilities, and at least twenty-five will know poverty in the important years between birth and age six.[3] Once in school, several of these children will come home and wait for adults in an empty house or

They will need to respond to ... issues that will require scientific and political expertise from some and commitment and spiritual depth from all.

apartment. At current rates, at least ten will still be functionally illiterate by the end of their teen years;[4] twenty-three will not complete high school;[5] and many more will manage to earn a diploma by drifting through a "General" course of study that will give them little preparation either for work or for further education. Twenty-five of our one hundred children will be chemically dependent or at risk of dependency by the time they reach adulthood.[6] Finally, one in fourteen of the girls will become pregnant as a teenager and several of our youngsters will become teen parents.[7]

As these typical one hundred children grow, they will enter an educational system that is struggling, often with commendable energy and dedication, to cope with watershed changes in our society. A century and a half ago, schools faced a similar challenge as a primarily agrarian society made the transition to the industrial age that has sculpted the economic might of the United States. Those schools produced a relatively small proportion of decisionmakers and a large mass of workers who were compliant, basically literate in English, and able to perform repetitive tasks effectively and in isolation — factory-model schools for an industrial economy. Until the 1950s, fewer than fifty percent of American students graduated from high school: our industries could absorb massive numbers of unskilled laborers.[8] Without much more than an eighth grade education, large numbers of Maine workers succeeded in valued traditional occupations — farming, logging, and working on the sea or at the mill.

Today, however, demographic trends, technological change, and tighter international competition have changed the employment landscape. Many opportunities in the mills and factories, once the mainstays of local economies, are disappearing as firms close plants, consolidate, or automate to survive. Since 1947, manufacturing jobs in Maine have declined from forty-four percent of the state's economy to twenty-two percent, and the decline continues as the service sector booms.[9] The smaller number of children born in Maine, and indeed in the nation, during the last two decades will also influence the futures of our new arrivals. Ninety percent of Maine's labor force of the year 2000 is already working.[10] Each year fewer young workers will enter the job market, and their required level of preparation for employment will rise as service and

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information industries create virtually all the new jobs and most of the new wealth in our state. Maine employers will seek qualified workers not only among the young, but increasingly among women not now employed, the elderly, and people with special needs.[11]

Maine businesses, in need of literate workers with good problem-solving skills, are becoming alarmed at the lack of competency in reading, writing, and mathematics of entry-level workers.[12] Here and across the nation, industrial jobs are changing shape, depending more on computers and other sophisticated machinery, requiring workers with greater flexibility[13] and improved information management skills. With this increased demand for highly-skilled workers, the lack of such skills among the unemployed disqualifies most from these jobs.[14]

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The emerging jobs in service and information industries need workers who have learned how to learn.[15] They need to know how to find and use information from libraries and other learning resources, not only for their employers' needs but for their own. Because

service work is also people-oriented, those employees, more than ever before, will need to be able to work cooperatively with others and interact effectively with the public.[16] Moreover, they will need to have completed high school and, for roughly three out of four new jobs, some education or training beyond high school.[17]

Our one hundred typical Maine youngsters will need to adapt quickly to change as the ever shorter life cycle of products, technologies, and industries results in more rapid obsolescence of their skills.[18] They will change jobs an average of eight times during their working lives.[19] As knowledge continues to multiply, information-management and computer-related skills will become tools for survival.

As we survey the current state of our delivery on that educational promise to Maine children, we must be alarmed. In the face of this rapid change, our public schools retain an outdated model of schooling at great costs to the young — and ultimately to society at large. The quality of education once reserved for a relative few must now be offered to all.

Most public high schools in Maine and the nation are, in fact, two high schools: one for students in college preparatory courses, the other for the rest. The tracking system, which sorts youngsters into at least these two categories (and frequently into more), purports to separate by academic ability. The evidence suggests that it actually separates by socio-economic status.

Beginning gradually with reading groups in the early grades, such grouping practices become less flexible as children grow older. As students in the "lower" track begin high school, they frequently become locked into a program that offers less adequate curriculum and instruction than that provided to their college-bound peers. Adults often underestimate the intellectual abilities of "lower track" students, sometimes by a wide margin, and either subtly or overtly communicate low expectations for academic performance. Inequalities in commitment to the two student groups abound, shown in distribution of resources, teaching skill, exploration of rich and stimulating ideas, adult enthusiasm, and positive messages about students' worth.

The quality of education once reserved for a relative few must now be offered to all.

School communities that wish to examine evidence of these inequalities should work with the available data about the relationship between socio-economic status and students' placement in academic tracks or "ability groups" in their own schools. (The argument that students choose their own placement is specious; by the time students reach high school, they have repeatedly received clear messages about where they "belong" in the tracking system.)

School communities might also examine their students' performances on the eleventh grade Maine Educational Assessment (MEA), designed to test not what college-bound juniors should know but what *every* Maine junior should know. Check the percentage of students enrolled in college-preparatory versus other programs. Look at the disparity between the average MEA scores of those two groups. Study the scores as broken down by gender. What conclusions can you reach about the degree to which our schools, as they are now structured, serve the needs of all students?

When surveyed by the MEA, teachers and principals across the state acknowledge that their schools' academic programs are less adequate in meeting the needs of non-college-bound students than the needs of the college-bound. More powerful evidence comes from students themselves. Concerned educators and citizens may listen to youngsters talk about the ways in which schools separate students and what that actually means for them. The Commission's student readers at three Maine high schools spoke eloquently to this, and our experiences in schools underscore their statements.

Most public high schools ... are, in fact, two schools: one for students in college preparatory courses, the other for the rest.

An alternative way to learn about these inequalities might be to spend one school day following the schedule of a non-college-bound student and the next in college preparatory classes. Adults who have done this describe significant differences between those experiences and relay great concern about the degree to which we are underserving about half the student population.

Too many of our students are already not being prepared to fulfill their potential, to have meaningful choices about their employment, and to meet the responsibilities of citizenship in a democratic society. All our youngsters are Maine's most precious resource. We must prepare all for the demands of their future.

With strong community support, our schools can adapt to the challenges of a rapidly-changing, information-based society. We can prepare students for the society in which they will live. The Common Core of Learning is a renewed promise to the youth of Maine. It is a commitment to an education that will offer the knowledge, skills, and attitudes they will need to ensure their independence, choice, and quality of life in the twenty-first century.

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In the twenty-first century, the world will be our classroom and the universe shall be studied. — JASON BECKLER[1]

As we discuss what our youth should know and be able to do in the twenty-first century, it is tempting to chip away at a very complex, integrated whole by relying on the familiar ways of dividing knowledge: the subject areas, as they were divided for us when we studied them in school. We are, however, entering an era in which we are thinking differently about knowledge — in fact, looking at a different conceptual model of how our world works. Observations of complexity and chaos both within the atom and among the reaches of the cosmos teach us that our search for the orderly, predictable arrangement of pieces results in only a partially accurate picture of reality. The same lesson comes out of studies of the inner workings of the human brain, which processes and organizes many things — parts and wholes — simultaneously. These models, emphasizing holism and integration, reshape not only the way we conceptualize the world around us, but also the way we think about learning.[2]

The knowledge, skills, and attitudes presented here are loosely organized into four categories that cut across the familiar subject areas. While we recognize that some thought processes are unique to a given subject (thinking like a historian, for instance, is not the same as thinking like a scientist), we also recognize that some areas are common to many subjects. Let's think of these areas in musical terms, as dynamic, complex, unified sound — an artistic whole.

We know that musicians are natural integrators: they wear many hats. They are linguists, communicating in the only language understood in every culture on the globe. They are physicists, adjusting nuances of their technique to their understanding of sound's travel through air in varying kinds of spaces. They are mathematicians, subdividing rhythms and pitches and using proportion in volume, phrasing, and tone color. They are physical and intellectual athletes, with highly disciplined muscles of body and sinews of memory. They are problem-solvers, alert, instantly flexible. They are psychologists in their understanding of a composer's intent and in their intuitive sense of what their fellow musicians are doing.

These models, emphasizing holism and integration, reshape ... the way we think about learning.

Most of all, they are artists, engaged in dynamic recreation and expression of the deepest parts of the self — the essence of what it means to be human. All this at once!

We, as listeners, hear their music all at once; it engages and touches us at many levels as we respond to its complexity.

Similarly, teaching and learning in the twenty-first century must have an integrated approach. Increasingly we will need to see connections and patterns among areas of thought that have too often been understood — and taught — in compartments or pieces. In our daily lives, as in making or hearing music, we do operate in an integrated or "interdisciplinary" fashion. Consider the knowledge, skills, and judgments involved in driving a car, preparing a meal, using your checkbook, or cultivating a garden.

Good teaching has always helped students to see the world and their knowledge as a whole and to be able to think critically and flexibly. In the future, these abilities will be ever more important. Our educational process must move away from the fragmenting of knowledge that has characterized it in the past. This is no easy task — it involves reconstructing deeply-internalized patterns of thought — yet it is necessary if we want our students to think better.

The Common Core of Learning is a non-disciplinary organization of knowledge, skills, and attitudes, an integrated approach to teaching and learning. It is *not* an arrangement of skills into four new courses (Communication I, The Human Record II). The essential concepts gleaned from the currently taught subject areas are organized in the areas of Personal and Global Stewardship, Communication, Reasoning and Problem Solving, and The Human Record. They are listed by subject areas in the Appendix.

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THE COMMON CORE OF LEARNING

PERSONAL AND GLOBAL STEWARDSHIP

Responsible citizenship requires awareness and a concern for oneself, others, and the environment. It involves interactions not only within the self and family, but between the self and friends, the community, the nation, and the world. It includes the knowledge and care of all dimensions of our selves as humans, an understanding of the group process, and a willingness to exercise the rights and responsibilities of citizenship. Stewardship also includes the study of current geography and foreign language and an appreciation of pluralism and human rights.

Students with a common core of knowledge . . .

- Accept responsibility for personal decisions and actions
- Have self-confidence and a willingness to risk mistakes in order to learn
- Are responsible for their own learning as independent and cooperative thinkers and informed decisionmakers
- Have the ability to adapt quickly to new situations and react to new information
- Concentrate and persevere on tasks
- Demonstrate academic honesty and respond to challenges with courage and integrity
- Respect the human rights of all people
- Understand the ethical dimensions of citizenship, love, friendship, and parenting
- Have skills that enhance their personal well-being:
  - Ability to state their own needs
  - Decision-making ability, including the ability to make informed career and life choices that result in healthy self-esteem

  - Straightforward communication and ability to build and sustain healthy relationships
  - Ability to manage stress
  - Ability to cope successfully with peer pressure and media messages urging dangerous or unhealthful behavior
  - Ability to select leisure time activities that develop and enhance wellness
- Understand basic concepts of growth and development, sexuality, family life, and parenting
- Have a basic understanding of the changing roles and rights of women and men in an increasingly diverse society
- Understand and practice self-care health skills, including good nutrition, safety and first aid, and avoidance of alcohol, tobacco, and other drugs
- Know when, where, and how to gain access to good health care
- Participate daily in physical activity and assess, develop, and maintain physical fitness
- Have a basic understanding of the development of modern technology and its effects on people, human culture, and the environment
- Find satisfaction in reading and writing and make those activities part of their everyday lives
- Understand that calculators, computers, and other technological devices are tools in the hand of the learner
- Believe that mathematics makes sense and have confidence in their ability to use mathematics meaningfully
- Show empathy and courtesy for others and respect for differences among people and cultures
- Understand the nature and roots of prejudice in themselves and others, as well as the ways prejudice contributes to injustice and oppression
- Are aware of our interdependence with the environment and are socially and environmentally responsible consumers
- Understand the arts to be a process for personal development and expression as well as for creating an aesthetic product
- Grasp the unique ability of the arts to encourage empathy and build a sense of community
- Possess knowledge of the everyday culture of another country (major customs, cultural commonplaces, and daily routines) and can identify similarities and differences between it and American culture
- Possess, as a result of non-native language study, an understanding of and an appreciation for the place of their own culture, language, and historic/ethnic heritage, as well as those of others, in a

pluralistic society

- Understand the geography of the places where a non-native language is spoken
- Understand basic principles of individual and group behavior, social organizations, and the processes of social change
- Understand the contributions made by various racial, ethnic, and religious groups to pluralistic societies, both their own and others around the world
- Demonstrate basic knowledge of the physical, economic, social, cultural, and political geography of Maine, the United States, and the world
- Understand the historical evolution of democratic principles and components of the constitutional government of the United States, as well as policy-making procedures of our local, state, and federal governments
- Show a basic understanding of world economic ideologies, systems, and practices and the global interdependence of economies
- Value and experience the opportunities for political, social, and economic participation in the life of the community
- Appreciate the inherent value of natural resources apart from their use by humans
- Respect and value all forms of life, their role in whole and healthy ecosystems, and the precarious position of our planet's environment in supporting life
- Understand work both as a means of economic survival and as an important source of personal identity and satisfaction
- Have a basic knowledge of work — careers, occupations, jobs, and the structure and functions of the labor market (national, state, and local)
- Are aware of their individual interests, aptitudes, skills, and values in relation to demands of the workplace; set goals for future work and understand the necessary preparation
- Understand the value of dependability, productivity, and initiative in all areas of life, including the world of work
- Seek out a fair share of the work load and manage time responsibly
- Work cooperatively and actively in group decision making, whether in small groups or in the larger society; are able to listen, share opinions, negotiate, compromise, and help the group reach consensus

COMMUNICATION

The ability of human beings to communicate through a variety of media with a high degree of specificity is one of our most remarkable achievements. In a rapidly-changing world, communications skills will become ever more essential to our students' future success.

Students with a common core of knowledge . . .

- Communicate clearly — orally, in writing, and with graphics
  - Have a strong command of standard oral and written language conventions
  - Demonstrate basic proofreading and editing skills
  - Use handbooks and reference books to locate language terminology and rules
  - Use writing to record the thoughts of others
  - Reflect on and evaluate their own language use, including choosing the level of language (formal, colloquial, slang) appropriate to the setting in which they find themselves
  - Understand the role of symbols as a means of human expression
- Use oral and written language in all its varieties to get things done, to take charge of their lives, to express their opinions, to function as productive citizens, and to entertain and enjoy themselves and others
- Demonstrate awareness of gender stereotyping and cultural bias in our language

- Can use technology-based (CD ROM, interactive video, multimedia, telecommunication, etc.) and traditional ways of acquiring information
- Understand the similarities and differences in the ways various social, vocational, and cultural groups use language
- Can use
  - Database management skills to organize information
  - Word-processing skills to convey ideas
  - Spreadsheet and graphing skills to express ideas quantitatively
- Understand the capabilities of the computer and use it as a creative learning tool
- Can express their ideas and emotions through participation in one or more of the visual and performing arts
- Can use and understand language appropriate to each art form when discussing and interpreting art works
- Can communicate and understand others in more than one language
  - Can ask and answer questions in another language and maintain a simple conversation in areas of immediate personal need
  - Can read, understand, and write in individual sentences or a short paragraph in another language authentic information about everyday topics
- Can understand and use the language of mathematics, orally and in writing, including the ability to express mathematical ideas through measurement and with physical material, pictures, diagrams, and graphs
- Have sufficient knowledge of the vocabulary and methods of science to be intelligent consumers and responsible users of scientific information
- Have mastered the numerical skills of science, including basic dexterity with numbers, competency with simple calculators, the ability to make estimations, and an appreciation for the vast differences among orders of magnitude from the subatomic to interstellar space

REASONING AND PROBLEM SOLVING

Knowledge is power. We must help students want to gain knowledge, show them how to get it, and encourage them to use it to reach a new understanding or to create a new product. We must help students learn to reflect on their processes of learning, regardless of their field of study.

Students with a common core of knowledge . . .

- Have developed attitudes and thinking skills essential to lifelong learning: curiosity and openness to new ideas, creativity, integrity, diligence, fairness, skepticism, and imagination
- Can think logically and solve problems by
  - Observing carefully
  - Defining the problem
  - Framing useful questions
  - Designing experiments that can answer those questions
  - Gathering and selecting information
  - Analyzing data — comparing and contrasting, seeking patterns, deducing sequential order, and developing tables/graphs/rules
  - Considering and testing more than one solution
  - Justifying strategies and solutions
  - Applying strategies and solutions to new situations
- Find tools in all areas of study to solve problems, investigate content, and develop thinking skills

- Recognize the interrelationships of the basic principles within an area of study
- Can easily make connections and move between and among the various areas of study
- Use language to understand themselves and others, to make sense of their world, and to reflect on their lives — by telling and listening to stories; by reading novels, poetry, and biographies; and by keeping journals or logs
- Can, as competent language users,
  - Use prior knowledge to comprehend new oral or written texts
  - Know when they don't know or don't understand oral or written language and have strategies for clarifying their thinking — by asking questions, rereading, or writing to learn
  - Respond to the material they read, hear, or watch by questioning, connecting, evaluating, and extending
  - Understand literal messages read or heard
  - Read and listen critically and interpretively
  - Make connections within and among texts
  - Use other readers' experiences with, responses to, and interpretation of texts
  - Hear literature, appreciating its sounds and cadences
- Recognize when language is being used to manipulate, coerce, or control them, and use language as an effective response to such attempts
- Understand that writing is a process that involves planning, drafting, giving and receiving feedback, revising, editing, and publishing
- Sustain concentration and commitment to problem solving over necessary lengths of time using oral or written language as a means of organizing and recording thoughts
- Understand enough about their individual learning styles to explain how they best become able to talk and/or write about an idea
- Understand how the arts, because of their power to move us, can be misused to exploit and manipulate masses of people
- Can create an original work in one of the fine arts or perform an interpretation of an existing work in one of the performing arts
- Can use the formal elements of the arts to make aesthetic judgments
- Can make number sense
  - Use estimation in both solving problems and in checking the reasonableness of the results
  - Explore relationships among representations of, and operations on, whole numbers, fractions, decimals, integers, and rational numbers

- Select and use an appropriate computational method from among mental arithmetic, paper-and-pencil, calculator, and computer methods
- Understand and can apply concepts of ratio, proportion, and percent in a variety of situations
- Use mathematical models, facts, properties, and relationships to explain their thinking
- Can create experimental and theoretical models of situations involving probabilities using traditional and computer-based technologies
- Use basic statistical methods to describe, analyze, evaluate, and make decisions
- Can represent a situation that involves variable quantities with expressions, equations, inequalities, and matrices (basic abstract algebra)
- Recognize and formulate real-world problems from situations within and outside mathematics
- Understand personal economics and have the ability to manage money
- Demonstrate fundamental scientific manipulation skills — reading scales and gauges, diluting liquids, mixing solid substances based on prescribed proportions, trouble-shooting common mechanical problems, and making simple electrical connections

THE HUMAN RECORD

The study of the human record not only includes the actions and events of the past but also the constructs of human thought and creativity as they have evolved through time. The human record includes works of literature and the arts; scientific laws and theories; and concepts of government, economic systems, philosophy, and mathematics. In fact, much of what we now think of as "subject matter" in today's curriculum belongs in this section.

Students with a common core of knowledge . . .

- Are able to read, for a variety of purposes, diverse types of material, including poems, stories, novels, drama, and expository texts in both print and electronic media
- Are familiar with works of diverse literary traditions — works by women and men of many racial, ethnic, and cultural groups in different times and parts of the world, including Shakespeare, the Bible as literature, and classical mythology
- Are familiar with contemporary and enduring works of American literature and have a sense of how important themes of American experience have developed through time
- Have a basic understanding of the history and structure of the English language
- Understand and appreciate the unique qualities of each of the art forms — drama, dance, music, and the visual arts
- Have a basic knowledge and understanding of art forms from various cultures and historical periods

- Understand how libraries and other repositories of human knowledge are organized
- Know about themselves as a species — the human life cycle, how we are distinguished from other life forms, the ways we learn and reason, and how we function biologically
- Know how to prevent or control diseases and disorders, including HIV (AIDS) infection
- Understand the role of daily physical activity in contributing to personal health and well-being
- Realize that scientific theories are creations of the human mind and can change with new developments
- Appreciate the impact of significant scientific discoveries and grasp the changes in human history brought about by the evolution of scientific thought
- Understand the atomic basis of the structure of matter, the existence of the basic forces of nature, the behaviors of the various stages of matter, and the common changes that various types of matter undergo
- Are aware of the forces that shape the earth as well as the universe and recognize that both order and chaos are present
- Appreciate that transformations of energy pervade biological, chemical, geological, and physical systems
- Understand the basic mechanical, optical, electrical, and magnetic workings of the physical world as well as the fundamental laws governing the motion of objects
- Understand the roles played by cell theory, plant and animal structure and function, ecological relationships, the principles of genetics, and evolution in our living environment
- Have a working understanding of the concepts, processes, and systems of technology, and of the safe and effective application of tools, materials, and machines
- Understand and apply the core concepts embedded in each of the social sciences — history, geography, political science, economics, philosophy, sociology, psychology, and the humanities
- Understand and be able to apply fundamental themes in geography: location, place, relationships within places, movement, regions, and global interdependence
- Understand the eras and major concepts in world history and in American history
- Understand the democratic principles upon which the United States was founded
- Demonstrate a working knowledge of the Declaration of Independence and the United States Constitution

WHAT MUST HAPPEN IN MAINE SCHOOLS FOR THE TWENTY-FIRST CENTURY?

We, the Commission, believe that all students are capable of learning the Common Core. We realize that it will take some students longer than others and that schools will need help in accommodating various learning rates and styles. But all students can and must gain control of the Common Core if they are to live productive, satisfying, free lives in the twenty-first century. We intend the Common Core to be the basis for educational change, a vision by which the course of education in Maine can be charted for the next decade. It is not meant to define all that students will learn during their educational experience but what must be common to all students.

To achieve this goal, we need to structure educational experiences to help children learn and want to keep learning throughout their lives. Research in cognitive psychology as well as the practical experiences of educators can teach us how students learn. Knowledge about teaching and learning constantly evolves, requiring us to work in the same way we ask students to, by seeking out and applying new knowledge, by experimenting, modifying, and refining to create optimal learning conditions.

When students are provided with experiences that actively involve them and are personally meaningful, their learning increases. Students should engage in genuine communication and in solving real problems, not in filling blanks nor memorizing problem-solving strategies. They need frequent library experiences connected to their classroom learning, for instance, rather than information skills instruction given and received in isolation. Texts and lessons that provide instant access to information or the simple steps to a thinking process hamper the development of students' skills in locating information and applying it to other situations. These skills are indispensable for today's youngsters, who "must realize that information, in whatever format, is our link with the best in human achievement, culture, and feelings."[1]

Similarly, our youngsters need more access to computers in school if they are to be ready for the challenges of their adult world. Computer-related technology should be a fundamental instrument in the curriculum, not an extra. Schools need more help in keeping pace with the technological realities of our society.

We, the Commission, believe that all students are capable of learning the Common Core.

The lack of opportunity for interaction with fellow students in today's schools also limits students' intellectual and emotional growth. Few places in our society isolate people from one another as completely as schools. Instead of prohibiting interaction, schools should encourage students to work together. Such learning has many benefits. Discussing the content of a lesson and listening to how others process information helps students establish a knowledge base upon which to build more complex understandings. Learning with others promotes empathy and a regard for different points of view.

Schooling cannot be separated from a student's identity, self-esteem, and feelings. Youngsters who lack confidence in their ability to do something probably will not do it. Similarly, students who accomplish tasks easily and achieve excellence but have little support from home and community may come to believe such accomplishment is not valued. As children gain knowledge and understanding about the world, they need also to learn about the worth of each individual. Educational systems must neither label children in deleterious ways nor employ groupings that exclude some students from an education of quality.

We intend the Common Core to be the basis for educational change ...

We need to allow youngsters to arrive at the Common Core through uncommon means and in varying times.

If we wish our young people to be both competent and confident as they leave our educational system, our model of instruction should not be governed by time. Learning isn't a race; finishing first should bring no prize. People learn at different rates. To accommodate their differences, we need to know the level of competence we want students to achieve, where they are in relation to that level, and how we can best help each student reach the goal. We need to allow youngsters to arrive at the Common Core through uncommon means and in varying times.

Commission members are concerned that some youngsters, particularly those with special needs, might be considered exempt from the goals of this document. We believe exceptional students should experience the Common Core of Learning to the degree that they are able, with the support of teachers who build on their strengths. The Individual Education Plan (IEP) is the vehicle for identifying which learning outcomes are appropriate for a given student.

Some people may criticize the Common Core of Learning as possible only in an ideal society. The members of the Commission do not believe that we live in an ideal society; we do, however, believe we live in a society of ideals. In matters pertaining to the education of our youth in Maine, only the highest ideals are acceptable. The quality of life in Maine depends upon their realization.

Likewise, some may be concerned that the Common Core will become a legislated mandate and that districts will have to quickly begin implementation. We do not believe the types of changes proposed by the Common Core can be mandated. We believe instead that the process of change can begin with every community examining its beliefs about learning and the potential of its children. Thus, the residents of every Maine community could use the Common Core of Learning as a catalyst for community discussions about education.

We do not believe the types of changes proposed by the Common Core can be mandated.

A vision of a common core requires that members of the community, including school personnel, become actively involved in the educational process. In the past, we have too often relied on educators to articulate the educational goals for our youth. We cannot

expect that educators alone can effect the types of fundamental changes we envision. Parents, students, business people, and other community members can share the task of helping to define the community's educational values, and they can use their shared values as a basis for educational practice. We need to examine how these beliefs are translated into practice not only within the schools but also within the community. Do the schools operate in ways that support the educational values of the community? Do local businesses support schools in their employment practices? Do all residents have educational opportunities that are congruent with the community's educational values? What would a community be like where people had a commitment to personal and global stewardship? What would change? What would remain the same? How could this belief become a basis for action in schools as well as in the community?

Changing how our children are educated is a dynamic process, constantly evolving, continually renewing. It requires, from us all, energy, commitment, introspection, and a vision that all students can obtain a common core of learning.

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We must be advocates for and participants in lifelong learning....

Our schools need teachers and administrators with the courage, vision, and energy to lead change efforts. They need time and resources to reflect collaboratively on students, curricula, and teaching to decide which knowledge, skills, and attitudes are best taught by integrating subjects and which are essential to specific subjects. Their criteria for making such decisions must always be the optimal growth of young people.

We, as parents and other members of the community, need to celebrate and help the efforts of our educators. We must vote to commit funds for improving and updating educational programs, resources, and facilities to make modern technology a part of the daily functioning of the school. We must become partners with schools to expand educational opportunities for students and to collaborate with them about program offerings. We must be advocates for and participants in lifelong learning in many ways, including support for and use of our libraries. But above all we, as parents particularly, must be instrumental in developing our children's abilities.

Maine's Department of Education and our local communities need to actively support school efforts. State government and our school boards need to show a degree of regulatory flexibility with schools as they progress toward helping students achieve the Common Core. They need also to offer school staffs financial, technical, and moral support for risk taking. They need to allocate more resources and allow current resources to be reapportioned to provide teachers with better pre-service and in-service training.

We cannot support educational change without some assurance that change efforts are making a difference. Accountability is imperative. Evaluation, however, cannot be limited to standardized assessment of student progress. We need to expand assessment to include portfolios, demonstrations, student products, and student performances. This information will not only give a true picture of individual student achievement but also provide communities with a more accurate picture of the strengths and weaknesses of their schools' programs.

As we pursue the Common Core, we must know that none of us is acting alone. We all — students, educators at all levels, parents, employers, citizens, government agencies — are doing this together. We all need to be initiators as well as supporters. We need to be partners. Our children deserve an education that will ensure their chances of a prosperous and productive adulthood. It is an investment in our future as well.

Our children deserve an education that will ensure their chances of a prosperous and productive adulthood.

APPENDIX: THE COMMON CORE OF LEARNING ORGANIZED BY SUBJECT AREA

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INTRODUCTION

Although the knowledge, skills, and attitudes presented in Maine's Common Core of Learning can be organized according to the familiar areas of study, the "lines" between them are, in fact, fluid, not lines at all. Students need to explore areas of commonality between and among subjects as well as the subjects themselves.

Certain skills and attitudes apply across all areas of study and are not new. They are, however, becoming more essential than ever to the future success of Maine's citizenry. These critical common skills and attitudes should be developed and encouraged in every classroom.

Academic Skills

- Curiosity and the habit of lifelong learning
- Clear oral, written, and graphic communication
- Ability to communicate and understand others in more than one language
- Ability to think creatively
- Ability to think logically and make informed judgments, especially in the use of evidence to support general statements or opinions
- Skill in solving problems: defining a problem, framing useful questions, gathering and selecting information, analyzing data, considering and testing possible solutions, and applying strategies to new situations
- Ability to find, select, evaluate, organize, and use information in various formats from libraries and other repositories
- Skill in evaluating the reliability of information from video, audio, and printed sources, including advertising and the mass media
- Ability to adapt quickly to new situations and react to new information
- Ease and flexibility in making connections and moving among various disciplines of thought
- Understanding that technology is a tool in the hand of the learner

Personal Skills and Attitudes

- Ability to accept responsibility for personal decisions and actions
- Ability to state their own needs
- Academic honesty and the ability to face challenges with courage and integrity
- Ability to develop and maintain a healthful lifestyle
- Empathy and courtesy for others and respect for differences among people and cultures
- Self-confidence and a willingness to risk mistakes in order to learn
- Ability to concentrate and persevere on tasks
- Willingness to seek out a fair share of the work load and manage time responsibly
- Skill and a willingness to work cooperatively with others, including ability to listen, share opinions, negotiate, compromise, and help a group reach consensus
- Reverence for all forms of life and a regard for the interdependence of life forms

Work without Hope
draws nectar in a sieve,
Hope without an Object
cannot live.
— SAMUEL TAYLOR COLERIDGE[1]

The quality of the Maine workforce in the twenty-first century depends upon the skills and understanding of the people working. To work productively, we need to understand how a workplace functions, how the people, tools, materials, and processes interact. We need also to understand the impact these interactions have on human society.

Our labor markets and society in general are changing at an accelerating pace. The number of Maine residents in the labor force is declining and will continue to decline over the next several decades. Most workers will change jobs many times throughout their working lives. To thrive in this changing world, individuals need skills for personal relationships and growth, skills that offer a broad range of personal and work choices.

Students with a common core of knowledge:

Personal and Global Stewardship

- Have a basic understanding of the changing roles of men and women in an increasingly diverse society
- Are aware of their individual interests, aptitudes, skills, and values in relation to demands of the work place; set goals for future work and understand the necessary preparation
- Recognize the value of dependability, productivity, and initiative in all areas of life, including the world of work
- Understand work both as a means of economic survival and as an important source of personal identity and satisfaction
- Have ability to make informed career and life choices
- Have a basic knowledge of the development of modern technology and its effects on people, human culture, and the environment
- Have a basic knowledge of work — careers, occupations, jobs, and the structure and functions of the labor market (national, state, and local)

Communication

- Use language, written and verbal, to work cooperatively and effectively with others

Reasoning and Problem Solving

- Can solve problems by
  - Observing carefully
  - Defining problems and framing useful questions
  - Creating experiments or designing solutions
  - Gathering, selecting, and analyzing data
  - Testing more than one solution
  - Justifying strategies and solutions
  - Applying strategies and solutions to new situations

The Human Record

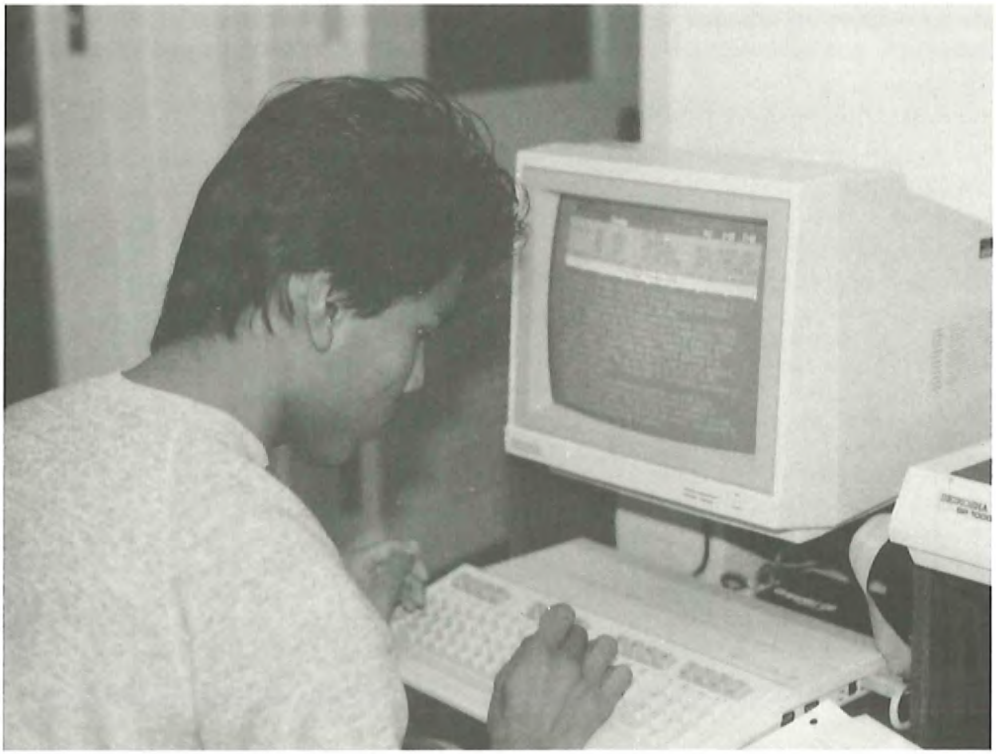
- Have a working understanding of the concepts, processes, and systems of technology through time, and of the safe and effective application of tools, materials, and machines

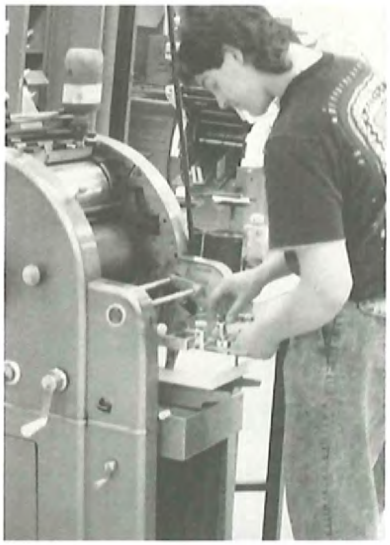
Implications for Teaching

Applied technology and vocational educators have a wealth of knowledge and skill in teaching methods that require youngsters to solve real problems. They structure learning situations to link the abstract with the concrete, motivating students by showing them the relevance of each task. Students are coached to explore the natural connections among subject areas and thus become active learners.

Applied technology and vocational educators, therefore, have a special role to play in helping Maine schools achieve the vision set out in the Common Core. If "academic" and "vocational" teachers are brought together in interdisciplinary teams, the distinctions between these courses will be erased and creative use of all members' expertise in pedagogy and curriculum can be made. As a result, all students can be helped to reach Common Core outcomes more effectively as they see connections between their theoretical learning and the practical research and design problems they are asked to solve. They will also be helped to link the activities of school and work as they study the application of their developing knowledge, skills, and attitudes to careers.

Vocational-technical facilities can serve as laboratories for all students, with instructional teams creating learning experiences that integrate concepts and practices across curriculum areas.





Art is the imposing of a pattern on experience, and our aesthetic enjoyment in recognition of the pattern.
— ALFRED NORTH WHITEHEAD[2]

The fine arts give us things of beauty. They challenge and extend human experience, providing means of expressing intimate thoughts and feelings beyond ordinary speaking and writing. They are a unique record of diverse cultures and the manner in which these cultures have developed over time. The arts also provide distinctive ways of understanding human beings and nature. They are creative modes by which all people can enrich their lives, both by self-expression and response to the expressions of others.[3] All Maine students must have experiences in the fine arts by the time they graduate from high school.

Students with a common core of knowledge:

Personal and Global Stewardship

- Understand the arts to be a process for personal development and expression as well as for creating an aesthetic product
- Grasp the unique ability of the arts to encourage empathy and build a sense of community
- Show respect for diverse points of view and artistic expressions of other cultures

Communication

- Can express their ideas and emotions through the participation in one or more of the visual and performing arts
- Demonstrate a working knowledge of the role of symbols as a means of human expression
- Can use and understand language appropriate to each art form when discussing and interpreting art works

Reasoning and Problem Solving

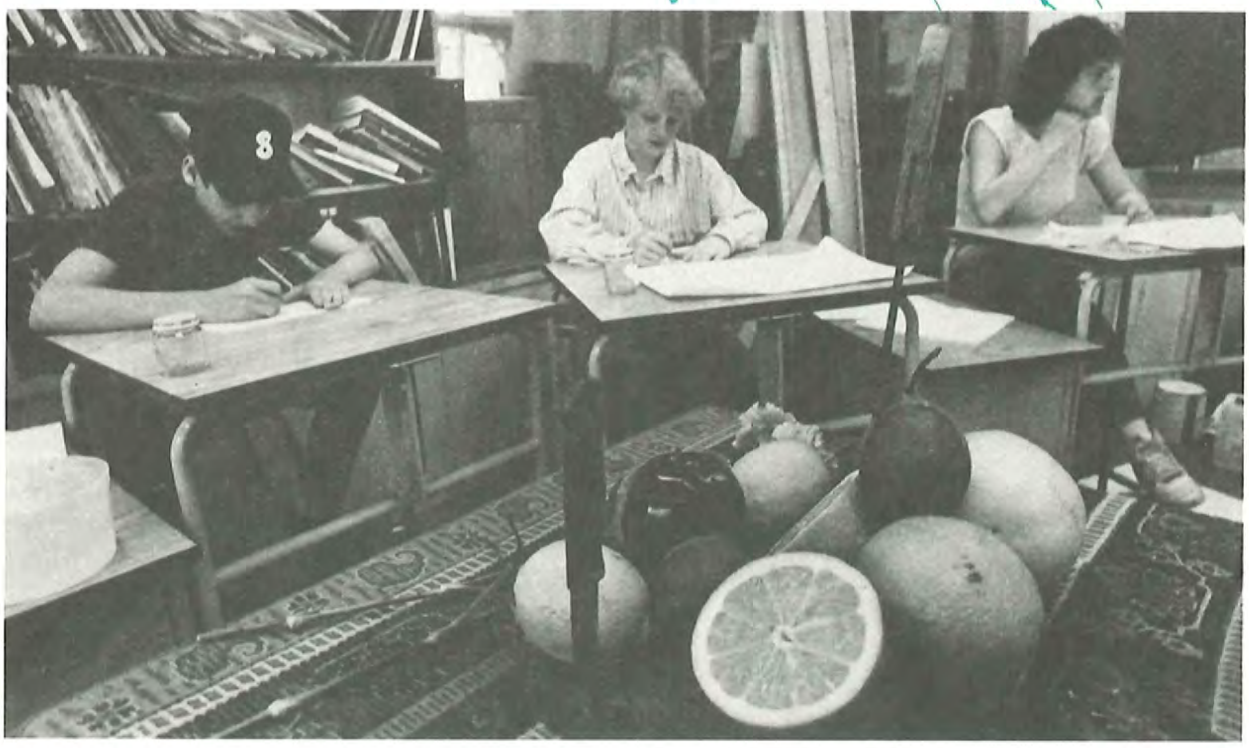
- Understand how the arts, because of their power to move us, can be misused to exploit and manipulate masses of people
- Use the arts as a means of solving problems and developing thinking skills
- Use the formal elements of the arts to make aesthetic judgments
- See connections between the visual/performing arts and other disciplines of thought

The Human Record

- Understand and appreciate the unique qualities of each of the art forms — drama, dance, music, and the visual arts
- Have a basic knowledge and understanding of art forms from various cultures and historical periods

Implications for Teaching

The study of the arts should engage students through their bodies, minds, and senses, making them active participants — as makers or doers, as members of a cultural community that understands and appreciates the arts, and as people familiar with a shared human artistic heritage. The arts are not for an elite. Visual and performing arts skills are fundamental tools for lifelong communication and self-exploration. For students to learn an appreciation for and understanding of the arts in history, science, and language, art study should be related to other subjects whenever possible.



. . . the big story of the 1990's will not be high-tech, but a renaissance in the arts, literature, and in spirituality . . . Science and technology don't tell us what it means to be human. The arts and literature and religion do that.
— JOHN NAISBITT[4]

The fundamental need for a sense of meaning and common human experience is a province of the English language arts. All students share this need, learn best when it is frequently and explicitly addressed in their schooling, and can explore it effectively through literature study.

The English language arts also form the foundation for effective communication, which depends upon a citizen's ability to speak, listen, view, read, and write. These skills, essential to the health of a democracy, are ever more important because of technological advances that have resulted in a modern explosion of communications media. The sophisticated devices that allow us to communicate more quickly over distances are still dependent upon the basic language arts.

Students with a common core of knowledge:[5]

Personal and Global Stewardship

- Find satisfaction in reading and writing and make those activities part of their everyday lives

Communication

- Communicate clearly — orally, in writing, and with graphics
  - Have a strong command of standard oral and written language conventions
  - Demonstrate basic proofreading and editing skills
  - Use handbooks and reference books to locate language terminology and rules
  - Reflect on and evaluate their own language use, including choosing the level of language (formal, colloquial, slang) appropriate to the setting in which they find themselves
- Use oral and written language in all its varieties to get things done, to take charge of their lives, to express their opinions, to function as productive citizens, and to entertain and enjoy themselves and others
- Demonstrate awareness of gender stereotyping and cultural bias in our language

Reasoning and Problem Solving

- Recognize when language is being used to manipulate, coerce, or control them, and use language as an effective response to such attempts
- Use language to understand themselves and others, to make sense of their world, and to reflect on their lives — by telling or listening to stories; by reading novels, poetry, and biographies; and/or by keeping logs or journals
- Understand their individual learning styles, how they are best able to talk and write about an idea
- Will, as competent language users,
  - Use prior knowledge to comprehend new oral or written texts
  - Know when they don't know or don't understand oral or written language and have strategies for clarifying their thinking — asking questions, rereading, or writing to learn
  - Respond to the material they read, hear, or watch by questioning, connecting, evaluating, and extending
  - Understand literal messages read or heard
  - Read and listen interpretively and critically
  - Make connections within texts and among texts
  - Use other readers' experiences with, responses to, and interpretations of texts
  - Hear literature, appreciating its sounds and cadences
- Understand that writing is a process that involves planning, drafting, giving and receiving feedback, revising, editing, and publishing
- Sustain concentration and commitment to problem solving over necessary lengths of time using oral or written language as a means of organizing and recording thoughts

The Human Record

- Are able to read, for a variety of purposes, diverse types of material, including poems, stories, novels, drama, and expository texts in both print and electronic media
- Are familiar with works of diverse literary traditions — works by women and men of many racial, ethnic, and cultural groups in different times and parts of the world, including Shakespeare, the Bible as literature, and classical mythology
- Are familiar with contemporary and enduring works of American literature

and have a sense of how important themes of American experience have developed through time
- Demonstrate knowledge of how language works and reflect about such things as the relationship between thought and language, the ways people use language and other symbol systems to communicate, the history and structure of language, and the similarities and differences in the ways various social, vocational, and cultural groups use language
- Have a basic understanding of the history and structure of the English language
- Understand how libraries and other repositories of human knowledge are organized

Implications for Teaching

The English language arts has recently undergone redefinition based on extensive research in linguistics, learning theory, language development, and literature. The standard English program as many of us know it has significantly changed.

The central concern of language arts studies is to develop students' ability to use language to help them control their lives — through communication, reflection, and understanding. To do so, students must be active learners.

We must design learning around ideas, concepts, and themes that make sense to students' daily lives. In all areas of study, they need to practice language arts strategies and receive feedback to help them improve. We must encourage and expand the interest in language that students bring with them when they first come to school — by ourselves, teachers as well as parents, being active, visible readers and writers.

Although Hindi is the third most commonly-spoken language in the world, few Americans would be able to read this quotation ("Truth will triumph."). Additionally, few Americans speak Mandarin Chinese, the world's most commonly-spoken language, or Japanese, the language of one of our most important trading partners. Certainly the Japanese recognize the advantage of speaking English: about 10,000 Japanese salespersons speak English, while fewer than 1,000 American salespersons speak Japanese. We don't fare any better with the language of our superpower colleague, the U.S.S.R. — there are more teachers of English in the Soviet Union than there are students of Russian in the United States.

Non-native language study is crucial for our national trade, diplomacy, and defense efforts. Knowing the languages and cultures of other countries prepares us to understand more about our planetary neighbors and communicate more effectively with them.

The study of foreign languages will help prepare Maine students for life and work as world citizens of the twenty-first century. Non-native language teaching must also develop students' cultural understanding, enabling them to apply what they have learned to authentic situations both at home and abroad.

Students with a common core of knowledge:

Personal and Global Stewardship

- Possess knowledge of the everyday culture (major customs, cultural commonplaces, and daily routines) of the country whose language they have studied
- Understand the geography of the places where the language is spoken
- Identify both similarities and differences between American culture and the culture(s) associated with another language
- Possess, as a result of non-native language study, an understanding of and appreciation for the place of their own culture, language, and historic/ethnic heritage, as well as those of others, in a pluralistic society
- Demonstrate increased confidence and empathy as world citizens
- Show heightened ability to understand and cope with unfamiliar situations, both in their own culture and in the culture of another country

Communication

- Can speak and understand, in a non-native language, simple statements necessary for basic survival in the target culture
- Can write in another language a clear, concise series of sentences or a short paragraph about familiar everyday topics

Reasoning and Problem Solving

- Can ask and answer questions in another language, and maintain a simple conversation in areas of immediate personal need

The Human Record

- Can read and understand, in individual sentences or a short paragraph in another language, authentic information about everyday topics

Implications for Teaching

Practices in foreign language teaching and learning have changed dramatically over the past few years. A focus on what students can actually do with a language is replacing passive rote memorization of dialogues and grammatical structures. The emphasis is on the message, not the form. The foreign language classroom environment should be dynamic, positive, and non-threatening as students actively participate in exercises and activities that foster real communication.

Instruction in foreign languages can begin in the early elementary grades when a child's interest in and ability to learn language is at its peak and can extend from kindergarten through high school. Skills development in listening, speaking, reading, and writing should be presented in authentic cultural contexts. Only through an extended sequence of language learning and practice can students achieve a higher level of proficiency.

We need to introduce languages not presently taught in our schools, such as Mandarin Chinese, Russian, and Japanese. With more widespread opportunity and encouragement to study these tongues, and perhaps even more importantly the cultures associated with them, students, as future American citizens, will be able to deal more effectively with trading and diplomatic partners of the United States.

Physical and mental health dimensions of educating [the young], dimensions so vital to the ancient Greeks, are largely lost on us Americans . . . In the view of 70 percent of all U.S. teachers, poor health and under-nourishment are problems for their students . . .

Although good health does not guarantee that students will be interested in learning, ample evidence suggests that the absence of good health lowers students' academic performance. The most obvious example is absences.
— CARNEGIE COUNCIL ON ADOLESCENT DEVELOPMENT[6]

A 1989 large-scale study by the University of Maine revealed that Maine school children are not as physically fit as many of their peers in other states, particularly in areas of cardiovascular fitness and body composition (fat-to-muscle ratio).[7] A quick glance at a daily newspaper, which commonly reports statistics about Maine children and teens at risk, confirms that many Maine youngsters suffer mental and emotional problems that affect their ability to learn. These factors relate directly to the quality of life for these young people, including their potential to become productive citizens.

Students with a common core of knowledge:

Personal and Global Stewardship

- Have skills that enhance their personal well-being
  - Decision-making ability
  - Interpersonal skills
  - Critical thinking and problem-solving skills
  - Ability to manage stress
  - Ability to cope successfully with peer pressure and media messages urging dangerous or unhealthful behaviors
- Participate daily in physical activity and assess, develop, and maintain physical fitness
- Understand basic concepts of growth and development, sexuality, family life, and parenting
- Select leisure time activities that develop and enhance wellness
- Understand and practice self-care health skills, including good nutrition, safety and first aid, and avoidance of alcohol, tobacco, and other drugs

Communication

- Communicate directly and honestly with others
- Have the ability to state their own needs

Reasoning and Problem Solving

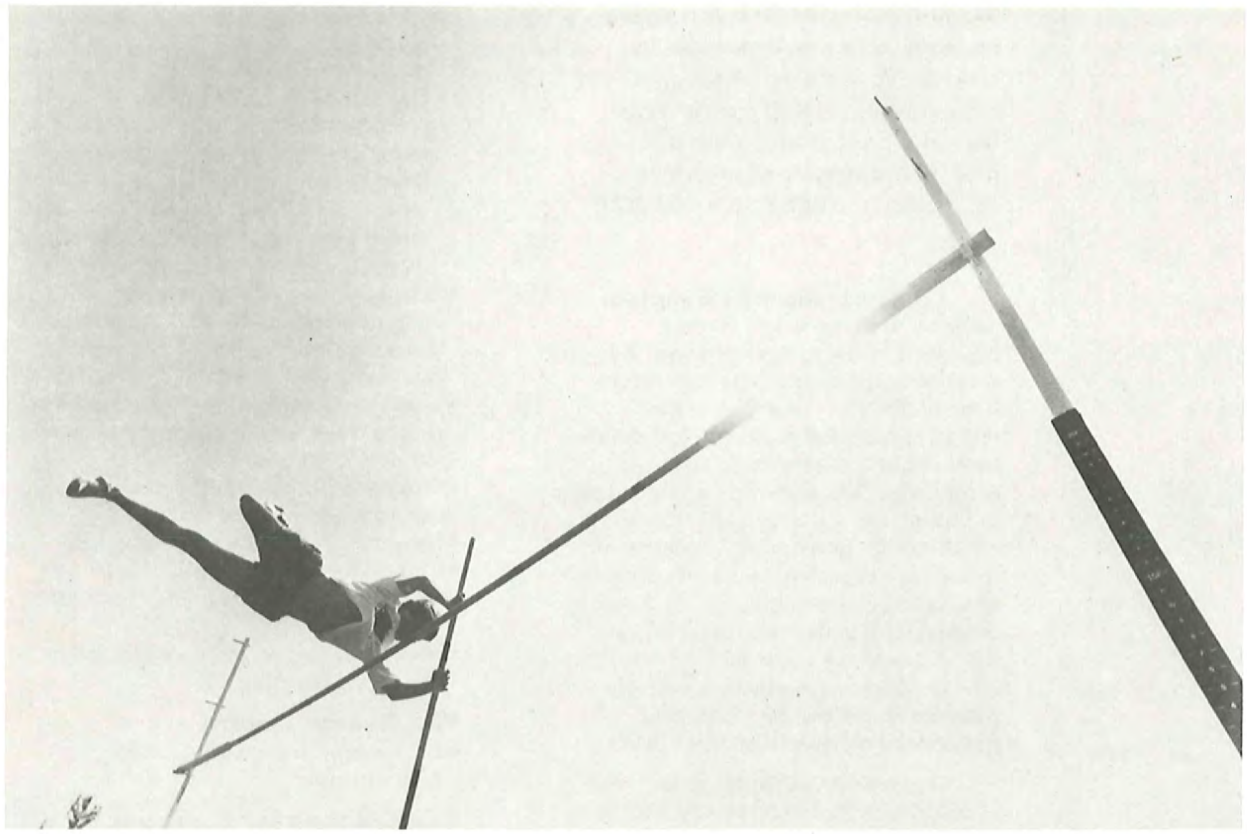
- Have the ability to form and sustain healthy relationships
- Know when, where, and how to gain access to good health care
- Understand personal economics and have the ability to manage money

The Human Record

- Understand the role of daily physical activity in contributing to personal health and well-being
- Know how to prevent or control diseases and disorders, including HIV (AIDS) infection

Implications for Teaching

Health and physical education studies during their school years help students learn and provide direction for their life-long productivity, well-being, and satisfaction. These studies actually constitute a "wellness" program — a holistic approach to physical, mental, and emotional health — that can be conducted with a comprehensive, sequential framework daily throughout the school years. It can be integrated with the student's *whole* life, including that of family and community. Students should be involved in learning activities that model good physical, mental, social, and emotional health practices. Similarly, we need to provide, as part of the classroom routine, early and sustained counseling for the achievement of personal aspirations (for postsecondary work or schooling, for instance) through a coordinated and integrated program of instruction.



The national spotlight is turning on mathematics as we appreciate its central role in the economic growth of this country . . . Mathematics must become a pump rather than a filter in the pipeline of American education. — EVERYONE COUNTS[a]

A review of the news is *powerful* evidence that the world is often described in mathematical ways. All seven articles on one page in a recent issue of *The New York Times,* for instance, included mathematical details, from voting patterns in Chicago, to compliance figures for the asbestos law, to production statistics of Vermont's maple syrup industry. Advances in our technological society cause an abundance of data daily to bombard us. As a result, mathematics skills must extend beyond the ability to calculate. Citizens must be able to interpret, evaluate, recognize patterns, make comparisons, and understand relationships from data.

The overall goal of teaching mathematics should be to develop in each learner an understanding of mathematics that lasts a lifetime and grows to meet changing demands. Students must be equipped with the mathematical skills that afford them the flexibility, adaptability, and creativity to function as productive citizens in the changing technological society of the twenty-first century.

Students with a common core of knowledge:

Personal and Global Stewardship

- Understand the value of applying mathematics to everyday situations
- Have confidence in their ability to use mathematics meaningfully

Communication

- Can use and understand the language of mathematics
- Can represent a situation that involves variable quantities with expressions, equations, inequalities, and matrices (basic abstract algebra)
- Use patterns and relationship to analyze mathematical situations, including the development of tables, graphs, and rules

Reasoning and Problem Solving

- Recognize and formulate real-world problems from situations within and outside mathematics
- Can make number sense
  - Use estimation in both solving problems and checking the reasonableness of the results
  - Explore relationships among representations of, and operations on, whole numbers, fractions, decimals, integers, and rational numbers
- Select and use an appropriate computational method from among mental arithmetic, paper-and-pencil, calculator, and computer methods
- Understand and can apply concepts of ratio, proportion, and percent in a variety of situations
- Can create experimental and theoretical models of situations involving probabilities
- Use basic statistical methods to describe, analyze, evaluate, and make decisions
- Make and test conjectures and follow logical arguments

The Human Record

- Understand measurement and relationships

Implications for Teaching

Curriculum reform in mathematics must address both its content and emphasis as well as how instruction is approached. With increased availability of calculators and computers, we no longer need to focus on computation and other traditional skills that have dominated the kind of mathematics taught and the teaching methods used. The present mathematics curriculum is narrow in scope; fails to foster mathematics insight, reasoning, and problem-solving; and emphasizes rote activities. At the secondary school level this is particularly true for the curriculum of non-college-bound students, who are often wrongly assumed to be unable to engage in higher-order mathematical thinking demanded by basic abstract algebra.

We must help students understand the process of mathematics so they retain the belief that learning math makes sense. They need practical experience in relating mathematics to their everyday lives so they can choose from a variety of computational or estimation techniques depending on the situation.

Ignorance of science threatens our economic well-being, national security, and the democratic process. We must do better. — CARL SAGAN[9]

At a time when lead stories in the media describe world-shaking events such as cold fusion in a Mason jar, superconductivity, life-threatening retroviruses, and Voyager discoveries, students in the United States do poorly on international science assessments. Yet there are few, if any, jobs that have been totally unaffected by recent scientific developments or improvements.

For a society as dependent upon science and technology as ours is, tolerating a lack of basic scientific knowledge among ordinary citizens is not only unwise but risky. Concentration of the control of scientific thought in the hands of a relative few can lead to potentially devastating consequences. Therefore, all Maine students need a fundamental understanding of and ability in all areas of science and technology.

Students with a common core of knowledge:

Personal and Global Stewardship

- Realize that intrinsic to all scientific endeavors are certain basic values and attitudes, including integrity, diligence, fairness, curiosity, openness to new ideas, skepticism, and imagination
- Understand the dynamic nature of our planet and the various forces that shape the earth and the universe and recognize that both order and chaos are present
- Respect and value the diversity of life, the interdependence of all life forms and the precarious position of our planet's environment in supporting life

Communication

- Have sufficient knowledge of the vocabulary and methodology of science to be intelligent consumers and responsible users of scientific information
- Communicate ideas effectively by using the fundamental skills of writing, speaking, and listening and are able to construct graphs and use sources of information
- Have mastered the numerical skills of science, including basic dexterity with numbers, competency with simple calculators, ability to make estimations and appreciate the vast differences among orders of magnitude from the subatomic to interstellar space

Reasoning and Problem Solving

- Observe carefully, find patterns that may exist, and deduce the order in which sequenced events take place
- Can use science process skills to interpret information, offer explanations for findings, raise questions that can be tested experimentally, and design experiments that can answer those questions
- Demonstrate fundamental manipulation skills — reading scales and gauges, diluting liquids, mixing solid substances based on prescribed proportions, trouble-shooting common mechanical problems, and making simple electrical connections

The Human Record

- Know about themselves as a species — the human life cycle, how we are distinguished from other life forms, the ways we learn and reason, and how we function biologically
- Understand that transformations of energy pervade biological, chemical, geological, and physical systems
- Understand the atomic basis to the structure of matter, the existence of the basic forces of nature, the behaviors of the various states of matter, and the common changes that various types of matter undergo
- Understand the basic mechanical, optical, electric, and magnetic workings of our physical world as well as the fundamental laws governing the motion of objects
- Understand the roles played by cell theory, plant and animal structure and function, ecological relationships, principles of genetics, and evolution in our living environment
- Realize that scientific theories are creations of the human mind and can change with new developments
- Recognize the interrelationships of the fundamental principles common to all the sciences, along with their links to technology
- Understand how science and technology affect human history

Implications for Teaching

The lightning pace of current and future technological change places an especially heavy burden on today's

science and technology educators. Virtually all of our youngsters require a higher skill and comfort level with various aspects of science and technology than the average citizen of preceding generations has needed. Yet it is no longer possible for teachers to "cover the facts" of science, given that the production of new scientific and technological information is expanding exponentially. The process skills of science, however, contain some useful techniques for survival in our increasingly-complex world. These practical problem-solving skills can help to develop the higher-order thinking skills so necessary for our youngsters to succeed.

A shift in science teaching and learning is therefore taking place. Students are now being encouraged to learn science and technology through inquiry methods that actively engage them as scientific thinkers and problem-solvers, rather than treat them as passive receivers of knowledge. Hands-on activities are essential.

This mode of science and technology instruction should begin regularly in the early elementary grades, capitalizing on young children's natural capacity to wonder about the nature of the physical world and living things and to become excited about guided discovery. Emphasis on student as doer and meaning-maker should continue in science and technology instruction through the high school years, focusing on both the logic and imagination demanded by scientific thinking.

In our secondary schools we must offer sufficient hands-on laboratory experiences to all students, with special attention given to providing more effective instruction for non-college-bound students. Their presently inadequate scientific and technological skills place them at special risk of being left behind in the economy of the future.

At all levels, effective learning of science and technology should be integrated with work in other disciplines. While this merger is most obvious with mathematics, language arts skills can be used regularly to report on and make meaning of the results of scientific inquiry. We must help students to explore the ongoing relationship between science and historical events and trends, the ethical dimensions of science and technology, and the relevance of scientific and technological knowledge to their daily lives.

Citizenship is not a spectator sport.
— ANONYMOUS

To contribute effectively as citizens in a democratic society and an interdependent world, students need to understand our society's central institutions and values as well as those of other cultures. Understanding the international context of contemporary life is essential for becoming humane, rational, creative, and productive world citizens.

The social studies focus on the complexity of our environment, historic, political, economic, geographic, cultural, and social. It is a natural integrator, combining the study and appreciation of history and the social sciences. It promotes skills and attitudes necessary for active and effective citizenship.

We all need to see our own life experiences as part of the larger human adventure in time and place. We need to understand how modern societies evolved, how they function, and how they change over time. Knowledge of past civilizations and their links to the present help us prepare for our individual and collective future.

Students with a common core of knowledge:

Personal and Global Stewardship

- Are responsible for their own learning as independent and cooperative thinkers and decisionmakers
- Appreciate their own historic and ethnic heritage as well as those of others
- Understand the rights and responsibilities of citizenship
- Value and experience the opportunities for political, social, and economic participation in the life of the community
- Understand the contributions made by various racial, ethnic, and religious groups in developing pluralistic societies, both our own and others around the world
- Understand the nature and roots of prejudice in themselves and others, as well as the ways prejudice contributes to injustice and oppression
- Demonstrate basic knowledge of the physical, economic, social, historical, cultural, and political geography of Maine, the United States, and the world
- Understand the historical evolution of democratic principles and components of the constitutional government of the United States, as well as policy-making procedures of its local, state, and federal governments
- Show a basic understanding of world economic ideologies, systems, and practices and the global interdependence of economies

Communication

- Understand and can organize information garnered from various sources, including maps, charts, graphs, globes, printed materials, film media, and the arts

Reasoning and Problem Solving

- Can integrate observations and learning from literature, art, and music into their social studies programs
- Can compare and contrast different political, economic, and social systems of the past and present
- Are responsible consumers

The Human Record

- Understand and apply the core concepts embedded in each of the social sciences: history, geography, political science, economics, philosophy, sociology, psychology, and the humanities
- Understand and be able to apply fundamental themes in geography: location, place, relationships within places, movement, regions, and global interdependence
- Understand the eras and major concepts in world history and in American history
- Understand the democratic principles upon which the United States was founded
- Demonstrate a working knowledge of the Declaration of Independence and the United States Constitution

Implications for Teaching

In an integrated social studies program, the community becomes a classroom where students can experience the democratic process and cultural richness of our society. They actively participate in the planning, monitoring, and evaluating of their learning experiences. Together they discuss, debate, and hold mock trials and other simulations, learning interactively and gaining self-confidence and skills as effective participants: planners, problem-solvers, decisionmakers, and leaders.

The process of social studies learning naturally involves the complex relationships between the individual (the student) and the world at large (the community). The goal of a social studies program is to prepare students for informed citizenry. In working towards that goal, every student should complete a community service project before graduating from high school. By so doing, students shift the focus from the community as a resource of the school toward the school as a resource of the community.

ENDNOTES

SECTION I *(Notes to pages 10–16)*

1. Adler, Mortimer J. *The Paideia Proposal.* New York: Macmillan, 1982. p. 5.

2. Maine Human Resources Development Council. *Maine Human Resource Development Plan.* Executive Summary. Augusta: Maine Department of Labor, July 1, 1988. p. 2.

3. Committee for Economic Development (CED). *Children in Need: Investment Strategies for the Emotionally Disadvantaged.* A Statement by the Research and Policy Committee of CED. 1987. p. 9.

4. Commission on Workforce Quality and Labor Market Efficiency. *Investing in People: A Strategy to Address America's Workforce Crisis.* Washington, D.C.: U.S. Department of Labor, 1989. p. 15.

5. Human Resources Development Council. *Second Annual Maine Human Resource Development Plan.* Executive Summary. Augusta: Maine Department of Labor, July 1, 1989. p. 5.

6. Committee for Economic Development (CED) and NYNEX Foundation. *Maine's Children in Need: Policy Forum.* February 1, 1989. p. 1.

7. *The Maine Labor Force to the Year 2000 and Related Human Resource Issues.* Augusta: Maine Department of Labor, April 1987. p. 10.

8. CED, *Children in Need.* p. 5.

9. *The Maine Labor Force to the Year 2000.* p. 6.

10. Human Resources Development Council. *Maine Human Resource Development Plan.* p. 2.

11. Human Resources Development Council. *Maine Human Resource Development Plan.* pp. 2–17.

12. *Statistics in Maine's At-Risk Youth.* Interdepartmental Committee on Primary Prevention. Augusta: Maine Department of Human Services, 1988.

13. CED. *Children in Need.* p. 5.

14. Commission on Workforce Quality and Labor Market Efficiency. *Investing in People.* pp. 2–3.

15. CED. *Children in Need.* p. 5.

16. Commission on Workforce Quality and Labor Market Efficiency. *Investing in People.* p. 9.

17. Human Resources Development Council. *Second Annual Maine Human Resource Development Plan.* p. 3.

18. Commission on Workforce Quality and Labor Market Efficiency. *Investing in People.* pp. 2–3.

19. Flis Schauffler, State of Maine Planning Office

SECTION II *(Notes to pages 17–29)*

1. Jason Beckler, in conversation with Betsy Parsons, March 8, 1990.

2. Crowell, Sam. "A New Way of Thinking: The Challenge of the Future." *Educational Leadership* 47:1 (September 1989). pp. 60–61.

SECTION III *(Notes to pages 30–35)*

1. Oregon Department of Education. *Library Information Skills Guide for Oregon Schools K–12.* Salem, Oregon: 1987. p. 2.

APPENDIX *(Notes to pages 37–55)*

1. Coleridge, Samuel Taylor. "Work Without Hope" (February 21, 1825).

2. Whitehead, Alfred North. *The Dialogues of Alfred North Whitehead.* Recorded by Lucien Price. Boston: Little, Brown, 1954.

3. *Academic Preparation for College: What Students Need to Know and Be Able to Do.* New York: College Entrance Examination Board, 1983. p. 16.

4. Naisbitt, John and Patricia Aburdene. *Megatrends 2000.* New York: William Morrow and Company, 1990. Quoted in Adkins, Gary. "*Megatrends* Author Foresees the Millenium." *Educational Leadership* 47:1 (September 1989), p. 16.

5. Many of these statements have been drawn directly from National Council of Teachers of English, *The English Coalition Conference: Democracy Through Language.* Urbana, Illinois, 1989.

6. Carnegie Council on Adolescent Development. *Turning Points: Preparing American Youth for the 21st Century.* Carnegie Corporation of New York, 1989. pp. 60–61.

7. Lehnhard, Holly R. and Robert A. *Physical Fitness Norms for Maine Public School Children Ages 5–17.* Orono: Center for Research and Evaluation, College of Education, University of Maine, 1990.

8. National Research Council. *Everybody Counts: A Report to the Nation on the Future of Mathematics Education.* Washington, D.C.: National Academy Press, 1989. p.6.

9. Sagan, Carl. "Why We Need to Understand Science." *Parade Magazine,* September 10, 1989. p. 6.

BIBLIOGRAPHY

Academic Preparation for College: What Students Need to Know and Be Able to Do. New York: College Entrance Examination Board, 1983.

Academic Preparation in English. New York: College Entrance Examination Board, 1985.

Academic Preparation in Foreign Language. New York: College Entrance Examination Board, 1986.

Academic Preparation in the Arts. New York: College Entrance Examination Board, 1985.

ACTFL Proficiency Guidelines. Hastings-on-Hudson, New York: American Council on the Teaching of Foreign Languages, 1986.

Adkins, Gary. "Megatrends Author Foresees the Millenium." *Educational Leadership* 47:1 (September 1989), pp. 16-17.

Adler, Mortimer J. *The Paideia Program.* New York: Macmillan, 1984.

Adler, Mortimer J. *The Paideia Proposal.* New York: Macmillan, 1982.

Aldridge, W.G. *Task Force on Scope and Sequence and Coordination of Secondary School Science.* National Science Teachers Association, 1989.

Allensworth, Diane and Lloyd Kolbe. "The Comprehensive School Health Program: Exploring an Expanded Concept." *Journal of School Health,* December 1987.

America in Transition: The International Frontier, a Report of the Task Force on International Education. Washington, D.C.: National Governors' Association, 1989.

American Library Association. *Final Report of the Presidential Committee on Information Literacy.* Chicago, January 1989.

American Memory, A Report on the Humanities in the Nation's Public Schools. Washington, D.C.: U.S. Government Printing Office, 1987.

Atwell, Nancie. *In the Middle: Writing, Reading and Learning with Adolescents.* Upper Montclair, New Jersey: Boynton/Cook, 1987.

Bader, Lois A. "Communicating with Teachers — Honestly." *Phi Delta Kappan* vol. 70, no. 8 (April 1989), pp. 626-9.

Benjamin, Steve. "An Ideascape for Education: What Futurists Recommend." *Educational Leadership* 47:1 (September 1989), pp. 8-14.

Berlin, Gordon and Andrew Sum. *Toward a More Perfect Union: Basic Skills, Poor Families, and Our Economic Future.* New York: The Ford Foundation, 1988.

Building a History Curriculum: Guidelines for Teaching History in the Schools. The Bradley Commission on History in the Schools, 1988.

Butler, Diane. *Futurework: Where to Find Tomorrow's High-Tech Jobs Today.* New York: Holt, Rinehart and Winston, 1984.

Bybee, R.W., et al. *Science and Technology Education for the Elementary Years: Frameworks for Curriculum and Instruction.* Andover, Massachusetts: The National Center for Improving Science Education, The Network, Inc., 1989.

Carnegie Council on Adolescent Development. *Turning Points: Preparing American Youth for the 21st Century.* Carnegie Corporation of New York, 1989.

Carnevale, Anthony, et al. *Workplace Basics: The Skills Employers Want.* American Society for Training and Development, 1988.

Cetron, Marvin J. *Schools of the Future: How American Business and Education Can Cooperate to Save Our Schools.* New York: McGraw-Hill, 1985.

Commission on Maine's Future. *The People of Maine: A Study in Values.* South Portland, Maine: Market Decisions, Inc., April 1989.

Commission on Workforce Quality and Labor Market Efficiency. *Investing in People: A Strategy to Address America's Workforce Crisis.* Washington, D.C.: U.S. Department of Labor, 1989.

Committee for Economic Development (CED). *Children in Need: Investment Strategies for the Emotionally Disadvantaged.* A statement by the Research Policy Committee of CED, 1987.

Committee for Economic Development (CED) and Nynex Foundation. *Maine's Children in Need.* Policy Forum. February 1, 1989.

Corcoran, Bill and Emrys Evans, eds. *Readers, Texts, Teachers.* Upper Montclair, New Jersey: Boynton/Cook, 1987.

Crowell, Sam. "A New Way of Thinking: The Challenge of the Future." *Educational Leadership* 47:1 (September 1989), pp. 60-63.

Curtain, Helena Anderson and Carol Ann Pesola. *Languages and Children — Making the Match.* Reading, Massachusetts: Addison-Wesley Publishing Company, 1988.

David, Jane L. *Restructuring in Progress: Lessons from Pioneering Districts.* Washington, D.C.: Center for Policy Research, National Governors' Association, 1989.

Dewey, John. *Art as Experience.* New York: Capricorn Books, 1958.

First Jobs: Young Workers in a Changing Economy. Education Writers Association, 1990.

Ford Foundation. Project on Social Welfare and the American Future. Executive Panel. *The Common Good.* New York: May 1989.

"Foreign Language Instruction in Elementary Schools." In *The Wingspread Journal,* vol. 10, no. 2 (July 1988). Racine, Wisconsin: The Johnson Foundation, Inc., 1988.

"Foreign Language Study, A Call for State Board Action." In *The State Board Connection, Issues in Brief,* vol. 7, no. 7 (September 1988). Alexandria, Virginia: National Association of State Boards of Education, 1988.

The Fourth R — Workforce Readiness. Washington, D.C.: National Alliance of Business, 1987.

Fowler, C. *Can We Rescue the Arts for America's Children?* New York: ACA Books, 1988.

From School to Work: Policy Information Report. Princeton, New Jersey: Educational Testing Service, 1990.

Gardner, Howard. *Frames of Mind: The Theory of Multiple Intelligences.* New York: Basic Books, 1983.

Gardner, Howard, and David Perkins, eds. *Art, Mind and Education.* Urbana, Illinois: University of Illinois Press, 1989.

Getty Center for Education in the Arts. *Beyond Creating: The Place for Art in America's Schools.* Los Angeles: Getty Center for Education in the Arts, 1985.

Guidelines for Geographic Education for Elementary and Second Schools. National Council for Geographic Education and The American Geographic Association, 1988.

Harris, Theodore L. and Eric J. Cooper, eds. *Reading, Thinking and Concept Development.* New York: College Entrance Examination Board, 1985.

"Health You've Got to Be Taught." An Evaluation of Comprehensive Health Education in American Public Schools, conducted by Louis Harris Associates, Inc., for The Metropolitan Life Foundation. 1988.

Human Resources Development Council. *Maine Human Resources Development Plan.* Executive Summary. Augusta: Maine Department of Labor, July 1, 1988.

Human Resources Development Council. *Second Annual Maine Human Resources Development Plan.* Executive Summary. Augusta: Maine Department of Labor, July 1, 1989.

Information Power: Guidelines for School Library Media Programs. Chicago: American Library Association, 1988.

Kearns, David T. and Denis P. Doyle. *Winning the Brain Race: A Bold Plan to Make Our Schools Competitive.* San Francisco: ICS Press, 1988.

"The Key to Improving Schools: An Interview with William Glasser." *Phi Delta Kappan,* May 1987.

Lehnhard, Holly R. and Robert A. *Physical Fitness Norms for Maine Public School Children Ages 5–17.* Orono: Center for Research and Evaluation, College of Education, University of Maine, 1990.

Maine Department of Educational and Cultural Services. *Maine Educational Assessment: State Summary and Interpretations 1987–88.* Augusta, 1988.

Maine Development Foundation. *Maine Economic Symposium: July 20–21, 1989.* Augusta, 1989.

The Maine Labor Force to the Year 2000 and Related Human Resource Issues. Augusta: Maine Department of Labor, April 1987.

Maine Occupational Needs to 1995. Augusta: Maine Department of Labor, Division of Economic Analysis and Research, 1987.

Mobilia, Wendy and Peter Eppig, Peter Monether. *The Critical Skills Classroom.* 2nd ed. Keene, New Hampshire: Antioch/New England Graduate School, 1990.

Murray, Donald M. *A Writer Teaches Writing.* 2nd Edition. Boston: Houghton Mifflin, 1985.

Naisbitt, John and Patricia Aburdene. *Megatrends 2000.* New York: William Morrow and Company, 1990.

National Association for Sport and Physical Education. *Definition of the Physically Educated Person: Outcomes of Quality Physical Education Programs.* Report of the Physical Education Outcomes Committee, Marian Franck, Chair. Reston, Virginia: American Alliance for Health, Physical Education, Recreation and Dance, 1990.

National Commission on Social Studies in the Schools. *Charting a Course: Social Studies for the 21st Century.* A Report of the Curriculum Task Force. Washington, D.C., November 1989.

National Council of Teachers of English. *The English Coalition Conference: Democracy Through Language.* Richard Lloyd-Jones and Andrea Lunsford, eds. Urbana, Illinois, 1989.

National Council of Teachers of Mathematics. *Curriculum and Evaluation Standards for School Mathematics.* Reston, Virginia, 1989.

National Endowment for the Arts. *Toward Civilization: A Report on Arts Education.* Washington, D.C., 1988.

National Research Council. *Everybody Counts: A Report to the Nation on the Future of Mathematics Education.* Washington, D.C.: National Academy Press, 1989.

Nelms, Ben, ed. *Literature in the Classroom: Readers, Texts, and Contexts.* Urbana, Illinois: National Council of Teachers of English, 1988.

Oakes, Jeannie. *Keeping Track: How Schools Structure Inequality.* New Haven: Yale University Press, 1985.

Omaggio, Alice C. *Teaching Language in Context.* Boston: Heinle & Heinle Publishers, Inc., 1986.

Oregon Department of Education. *Library Information Skills Guide for Oregon Schools K–12.* Salem, Oregon, 1987.

Perkins, David. *The Mind's Best Work.* Cambridge: Harvard University Press, 1981.

Probst, Robert E. *Response and Analysis: Teaching Literature in the Junior and Senior High School.* Portsmouth, New Hampshire: Boynton/Cook, 1988.

Quinn, Thomas, and Cheryl Hanks, eds. *Coming to Our Senses: The Significance of the Arts for American Education.* American Council for the Arts. New York: ACA Books, 1977.

"Results of the School Health Education Evaluation." *Journal of School Health,* October 1985.

Rose, Mike. *Lives on the Boundary.* New York: Penguin Books, 1989.

Rutherford, F.J. (Project Director). *Project 2061: Science for All Americans.* "Overview Report," "Biological and Health Sciences," "Social and Behavioral Sciences," "Mathematics," "Physical and Information Sciences and Engineering," "Technology." Washington, D.C.: American Association for the Advancement of Science, 1989.

Sagan, Carl. "Why We Need to Understand Science." *Parade Magazine,* September 10, 1989, pp. 6–10.

Sizer, Theodore R. *Horace's Compromise.* Boston: Houghton Mifflin, 1984.

Statistics in Maine's At-Risk Youth. Interdepartmental Committee on Primary Prevention. Augusta: Maine Department of Human Services, 1988.

Thayer High School staff (Dennis Littky, Principal). *List of Essentials.* Winchester, New Hampshire, 1986.

Toffler, Alvin. *The Third Wave.* New York: William Morrow and Co., 1980.

Weaver, Constance. *Reading Process and Practice.* Portsmouth, New Hampshire: Heinemann Educational Books, 1988.

Whitehead, Alfred North. *The Dialogues of Alfred North Whitehead.* Recorded by Lucien Price. Boston: Little, Brown, 1954.

William T. Grant Foundation, Commission on Work, Family and Citizenship. *The Forgotten Half: Pathways to Success for America's Youth and Young Families.* Washington, D.C., November 1988.

Wolf, Dennie Palmer. *Reading Reconsidered: Literature and Literacy in High School.* Academic Preparation Series Supplement. New York: College Entrance Examination Board, 1988.

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What the people want is very simple. They want an America as good as its promise.

— BARBARA JORDAN
HARVARD COMMENCEMENT ADDRESS, JUNE 16, 1977


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