DOCUMENT RESUME

ED 445 093 TM 031 773

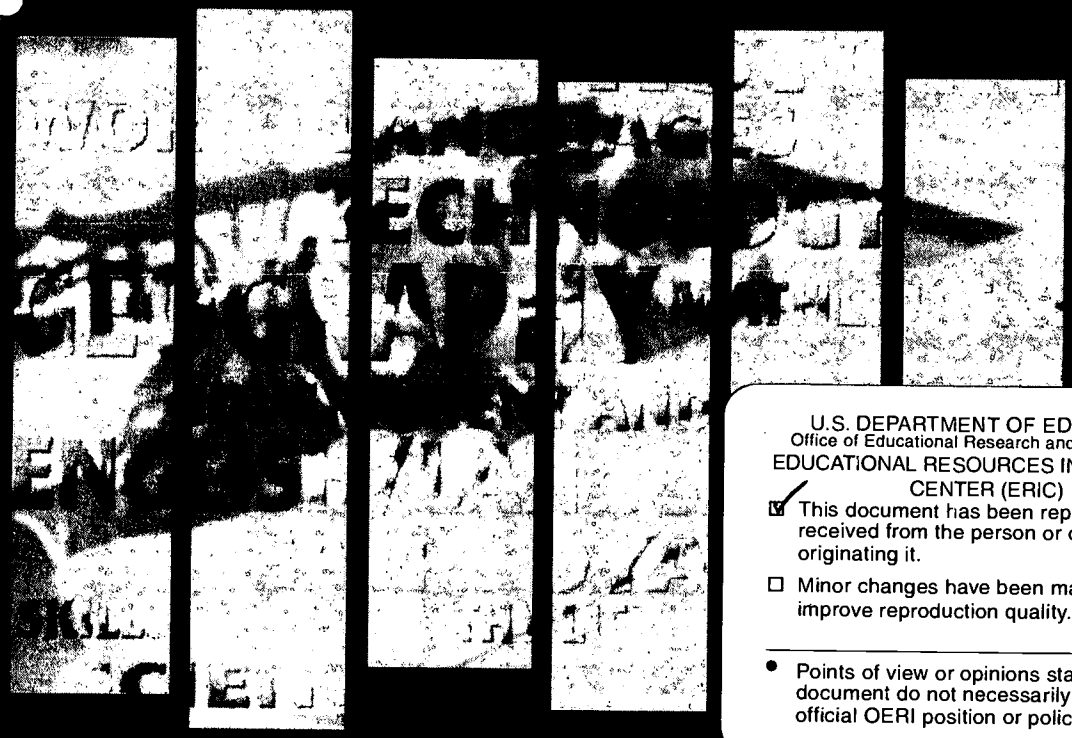
TITLE	Alaska Standards: Content and Performance Standards for Alaska Students.
INSTITUTION	Alaska State Dept. of Education, Juneau.
PUB DATE	2000-02-00
NOTE	66p.; For an earlier edition of the content standards, see ED 403 305.
PUB TYPE	Legal/Legislative/Regulatory Materials (090)
EDRS PRICE	MF01/PC03 Plus Postage.
DESCRIPTORS	*Academic Standards; *Course Content; *Cultural Awareness; *Curriculum; Elementary Education; Graduation Requirements; Health; Information Literacy; Language Arts; Mathematics; Performance; Reading; School Districts; Sciences; *State Standards
IDENTIFIERS	*Alaska

ABSTRACT

This revised edition of the Alaska standards booklet has expanded on the earlier content standards to add standards for employability, cultural responsiveness, performance, and library/information literacy. The State of Alaska has called on school districts to adopt the state standards, and the state will assess how well students meet the performance standards in reading, writing, and mathematics in grades 3, 6, and 8. High school students will need to pass the High School Graduation Qualifying Examination to earn a high school diploma beginning in 2002. The content standards are listed for these areas: (1) English/language arts; (2) mathematics; (3) science; (4) geography; (5) government and citizenship; (6) history; (7) skills for a healthy life; (8) the arts; (9) world languages; (10) technology; (11) employability; and (12) library and information literacy. The cultural standards outline the cultural awareness and respect for cultural differences required of Alaska's students. Performance standards are specified for reading, writing, and mathematics. (SLD)

TM

ALASKA STANDARDS



CONTENT AND PERFORMANCE STANDARDS FOR ALASKA STUDENTS

February 2000
Department of Education & Early Development

Dear Alaskans:

This revised edition of the Alaska Standards Booklet represents almost seven years of intense effort by many people to describe what the students in our state should know and be able to do as a result of their public school experience.

Our state embarked on this campaign in 1993 when we began developing Content Standards—broad statements of what our students should know and be able to do—in ten core subject areas: English/Language Arts, Mathematics, Science, Geography, Government and Citizenship, History, Skills for a Healthy Life, Arts, World Languages, Technology. Those standards were included in the first edition of this book.

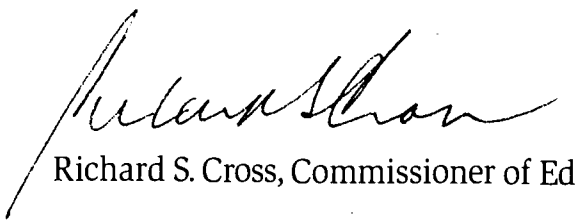
Since then, the Alaska Quality Schools Initiative—the campaign to bring measurable student standards and assessments to our public schools—has expanded on the Content Standards to provide additional tools for ensuring a quality education. The following standards have been added to the second edition of this booklet:

- **Employability Standards** taught in conjunction with the content standards promote successful transition from school to work.
- **Cultural Standards for Students** from the Alaska Standards for Culturally Responsive Schools as developed by the Alaska Native Knowledge Network and adopted by the State Board of Education & Early Development.
- **Performance Standards** in reading, writing, and mathematics.
- **Library/Information Literacy Standards**.

The State of Alaska has called upon school districts to adopt the state standards. The State will assess how well the students meet the Performance Standards in reading, writing, and math in the third, sixth, and eighth grades. High school students will need to pass the High School Graduation Qualifying Examination to earn a high school diploma beginning 2002.

This system of standards and assessments—coupled with the state-mandated California Achievement Test at the 4th and 8th grades—will give educators, families and policymakers solid information with which to hold schools and communities accountable for the academic achievement of children.

We will continue to implement the Alaska Quality Schools Initiative to support the expansion of rigorous academic standards, assessment and accountability across a broader range of subject areas. We have made tremendous progress. We still have a long way to go.



Richard S. Cross, Commissioner of Education & Early Development

February 2000

For additional information on Alaska's standards, write:
Standards, Department of Education & Early Development
801 W. Tenth Street, #200, Juneau, Alaska, 99801-1894
or call 907/465-2800; or visit our web-site: www.eed.state.ak.us

TABLE OF CONTENTS

ALL CHILDREN . . .
RISE EASILY TO THE COMMON LEVEL.
THERE THE MASS STOP;
STRONG MINDS ONLY ASCEND HIGHER.
BUT RAISE THE STANDARD,
AND, BY A SPONTANEOUS MOVEMENT,
THE MASS WILL RISE AGAIN AND REACH IT.

Horace Mann's First Annual Report (1837)

CONTENT STANDARDS FOR ALASKA STUDENTS

The State Board of Education & Early Development has adopted into regulation Content Standards listed on the following pages. Content Standards are broad statements of what students should know and be able to do as a result of their public school experience.

ENGLISH/ LANGUAGE ARTS

A student should be able to speak and write well for a variety of purposes and audiences.

A student who meets the content standard should:

1) apply elements of effective writing and speaking; these elements include ideas, organization, vocabulary, sentence structure, and personal style;
2) in writing, demonstrate skills in sentence and paragraph structure, including grammar, spelling, capitalization, and punctuation;
3) in speaking, demonstrate skills in volume, intonation, and clarity;
4) write and speak well to inform, to describe, to entertain, to persuade, and to clarify thinking in a variety of formats, including technical communication;
5) revise, edit, and publish the student's own writing as appropriate;
6) when appropriate, use visual techniques to communicate ideas; these techniques may include role playing, body language, mime, sign language, graphics, Braille, art, and dance;
7) communicate ideas using varied tools of electronic technology; and
8) evaluate the student's own speaking and writing and that of others using high standards.

A student should be a competent and thoughtful reader, listener, and viewer of literature, technical materials, and a variety of other information.

A student who meets the content standard should:

1) comprehend meaning from written text and oral and visual information by applying a variety of reading, listening, and viewing strategies; these strategies include phonic, context, and vocabulary cues in reading, critical viewing, and active listening;

2) reflect on, analyze, and evaluate a variety of oral, written, and visual information and experiences, including discussions, lectures, art, movies, television, technical materials, and literature; and
3) relate what the student views, reads, and hears to practical purposes in the student's own life, to the world outside, and to other texts and experiences.

A student should be able to identify and select from multiple strategies in order to complete projects independently and cooperatively.

A student who meets the content standard should:

1) make choices about a project after examining a range of possibilities;
2) organize a project by
   a. understanding directions;
   b. making and keeping deadlines; and
   c. seeking, selecting, and using relevant resources;
3) select and use appropriate decision-making processes;
4) set high standards for project quality; and
5) when working on a collaborative project,
   a. take responsibility for individual contributions to the project;
   b. share ideas and workloads;
   c. incorporate individual talents and perspectives;
   d. work effectively with others as an active participant and as a responsive audience; and
   e. evaluate the processes and work of self and others.

A student should be able to think logically and reflectively in order to present and explain positions based on relevant and reliable information.

A student who meets the content standard should:

1) develop a position by
   a. reflecting on personal experiences, prior knowledge, and new information;
   b. formulating and refining questions;
   c. identifying a variety of pertinent sources of information;
   d. analyzing and synthesizing information; and
   e. determining an author's purposes;

2) evaluate the validity, objectivity, reliability, and quality of information read, heard, and seen;
3) give credit and cite references as appropriate; and
4) explain and defend a position orally, in writing, and with visual aids as appropriate.

A student should understand and respect the perspectives of others in order to communicate effectively.

A student who meets the content standard should:

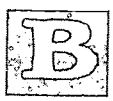
1) use information, both oral and written, and literature of many types and cultures to understand self and others;
2) evaluate content from the speaker's or author's perspective;
3) recognize bias in all forms of communication; and
4) recognize the communication styles of different cultures and their possible effects on others.

MATHEMATICS

A student should understand mathematical facts, concepts, principles, and theories.

A student who meets the content standard should:

1) understand and use numeration, including
   a. numbers, number systems, counting numbers, whole numbers, integers, fractions, decimals, and percents; and
   b. irrationals and complex numbers;
2) select and use appropriate systems, units, and tools of measurement, including estimation;
3) perform basic arithmetic functions, make reasoned estimates, and select and use appropriate methods or tools for computation or estimation including mental arithmetic, paper and pencil, a calculator, and a computer;
4) represent, analyze, and use mathematical patterns, relations, and functions using methods such as tables, equations, and graphs;
5) construct, draw, measure, transform, compare, visualize, classify, and analyze the relationships among geometric figures; and
6) collect, organize, analyze, interpret, represent, and formulate questions about data and make reasonable and useful predictions about the certainty, uncertainty, or impossibility of an event.



A student should understand and be able to select and use a variety of problem-solving strategies.

A student who meets the content standard should:

1) use computational methods and appropriate technology as problem-solving tools;
2) use problem solving to investigate and understand mathematical content;

3) formulate mathematical problems that arise from everyday situations;
4) develop and apply strategies to solve a variety of problems;
5) check the results against mathematical rules;
6) use common sense to help interpret results;
7) apply what was learned to new situations; and
8) use mathematics with confidence.

A student should understand and be able to form and use appropriate methods to define and explain mathematical relationships.

A student who meets the content standard should:

1) express and represent mathematical ideas using oral and written presentations, physical materials, pictures, graphs, charts, and algebraic expressions;
2) relate mathematical terms to everyday language;
3) develop, test, and defend mathematical hypotheses; and
4) clarify mathematical ideas through discussion with others.

A student should be able to use logic and reason to solve mathematical problems.

A student who meets the content standard should:

1) analyze situations;
2) draw logical conclusions;
3) use models, known facts, and relationships to explain the student's reasoning;
4) use deductive reasoning to verify conclusions, judge the validity of arguments, and construct valid arguments; and
5) use inductive reasoning to recognize patterns and form mathematical propositions.

A student should be able to apply mathematical concepts and processes to situations within and outside of school.

A student who meets the content standard should:

1) explore problems and describe results using graphical, numerical, physical, algebraic, and verbal mathematical models or representations;
2) use mathematics in daily life; and
3) use mathematics in other curriculum areas.

SCIENCE

A student should understand scientific facts, concepts, principles, and theories.

A student who meets the content standard should:

1) understand models describing the nature of molecules, atoms, and sub-atomic particles and the relation of the models to the structure and behavior of matter (Structure of Matter);
2) understand the physical, chemical, and nuclear changes and interactions that result in observable changes in the properties of matter (Changes and Interactions of Matter);
3) understand models describing the composition, age, and size of our universe, galaxy, and solar system and understand that the universe is constantly moving and changing (Universe);
4) understand observable natural events such as tides, weather, seasons, and moon phases in terms of the structure and motion of the earth (Earth);
5) understand the strength and effects of forces of nature, including gravity and electromagnetic radiation (Forces of Nature);
6) understand that forces of nature cause different types of motion and describe the relationship between these forces and motion (Motion);
7) understand how the earth changes because of plate tectonics, earthquakes, volcanoes, erosion and deposition, and living things (Processes that Shape the Earth);
8) understand the scientific principles and models that
   a. describe the nature of physical, chemical, and nuclear reactions;
   b. state that whenever energy is reduced in one place, it is increased somewhere else by the same amount; and
   c. state that whenever there is a transformation of energy, some energy is spent in ways that make it unavailable for use (Energy Transformations);

9) understand the transfers and transformations of matter and energy that link living things and their physical environment, from molecules to ecosystems (Flow of Matter and Energy);
10) understand that living things are made up mostly of cells and that all life processes occur in cells (Cells);
11) understand that similar features are passed on by genes through reproduction (Heredity);
12) distinguish the patterns of similarity and differences in the living world in order to understand the diversity of life and understand the theories that describe the importance of diversity for species and ecosystems (Diversity);
13) understand the theory of natural selection as an explanation for evidence of changes in life forms over time (Evolution and Natural Selection);
14) understand
    a. the interdependence between living things and their environments;
    b. that the living environment consists of individuals, populations, and communities; and
    c. that a small change in a portion of an environment may affect the entire environment (Interdependence);
15) use science to understand and describe the local environment (Local Knowledge); and
16) understand basic concepts about the theory of relativity, which changed the view of the universe by uniting matter and energy and by linking time with space (Relativity).

A student should possess and understand the skills of scientific inquiry.

A student who meets the content standard should:

1) use the processes of science; these processes include observing, classifying, measuring, interpreting data, inferring, communicating, controlling variables, developing models and theories, hypothesizing, predicting, and experimenting;
2) design and conduct scientific investigations using appropriate instruments;
3) understand that scientific inquiry often involves different ways of thinking, curiosity, and the exploration of multiple paths;
4) understand that personal integrity, skepticism, openness to new ideas, creativity, collaborative effort, and logical reasoning are all aspects of scientific inquiry;

5) employ ethical standards, including unbiased data collection and factual reporting of results; and
6) employ strict adherence to safety procedures in conducting scientific investigations.

A student should understand the nature and history of science.

A student who meets the content standard should:

1) know how the words "fact," "observation," "concept," "principle," "law," and "theory" are generally used in the scientific community;
2) understand that scientific knowledge is validated by repeated specific experiments that conclude in similar results;
3) understand that society, culture, history, and environment affect the development of scientific knowledge;
4) understand that some personal and societal beliefs accept non-scientific methods for validating knowledge;
5) understand that sharing scientific discoveries is important to influencing individuals and society and in advancing scientific knowledge;
6) understand that scientific discovery is often a combination of an accidental happening and observation by a knowledgeable person with an open mind;
7) understand that major scientific breakthroughs may link large amounts of knowledge, build upon the contributions of many scientists, and cross different lines of study; and
8) understand that acceptance of a new idea depends upon supporting evidence and that new ideas that conflict with beliefs or common sense are often resisted.

A student should be able to apply scientific knowledge and skills to make reasoned decisions about the use of science and scientific innovations.

A student who meets the content standard should:

1) apply scientific knowledge and skills to understand issues and everyday events;
2) understand that scientific innovations may affect our economy, safety, environment, health, and society and that these effects may be long or short term, positive or negative, and expected or unexpected;

3) recommend solutions to everyday problems by applying scientific knowledge and skills;
4) evaluate the scientific and social merits of solutions to everyday problems;
5) participate in reasoned discussions of public policy related to scientific innovations and proposed technological solutions to problems; and
6) act upon reasoned decisions and evaluate the effectiveness of the action.

GEOGRAPHY

A student should be able to make and use maps, globes, and graphs to gather, analyze, and report spatial (geographic) information.

A student who meets the content standard should:

1) use maps and globes to locate places and regions;
2) make maps, globes, and graphs;
3) understand how and why maps are changing documents;
4) use graphic tools and technologies to depict and interpret the world's human and physical systems;
5) evaluate the importance of the locations of human and physical features in interpreting geographic patterns; and
6) use spatial (geographic) tools and technologies to analyze and develop explanations and solutions to geographic problems.

A student should be able to utilize, analyze, and explain information about the human and physical features of places and regions.

A student who meets the content standard should:

1) know that places have distinctive geographic characteristics;
2) analyze how places are formed, identified, named, and characterized;
3) relate how people create similarities and differences among places;
4) discuss how and why groups and individuals identify with places;
5) describe and demonstrate how places and regions serve as cultural symbols, such as the Statue of Liberty;
6) make informed decisions about where to live, work, travel, and seek opportunities.

7) understand that a region is a distinct area defined by one or more cultural or physical features; and
8) compare, contrast, and predict how places and regions change with time.

A student should understand the dynamic and interactive natural forces that shape the earth's environments.

A student who meets the content standard should:

1) analyze the operation of the earth's physical systems, including ecosystems, climate systems, erosion systems, the water cycle, and tectonics;
2) distinguish the functions, forces, and dynamics of the physical processes that cause variations in natural regions; and
3) recognize the concepts used in studying environments and recognize the diversity and productivity of different regional environments.

A student should understand and be able to interpret spatial (geographic) characteristics of human systems, including migration, movement, interactions of cultures, economic activities, settlement patterns, and political units in the state, nation, and world.

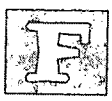
A student who meets the content standard should:

1) know that the need for people to exchange goods, services, and ideas creates population centers, cultural interaction, and transportation and communication links;
2) explain how and why human networks, including networks for communications and for transportation of people and goods, are linked globally;
3) interpret population characteristics and distributions;
4) analyze how changes in technology, transportation, and communication impact social, cultural, economic, and political activity; and
5) analyze how conflict and cooperation shape social, economic, and political use of space.

A student should understand and be able to evaluate how humans and physical environments interact.

A student who meets the content standard should:

1) understand how resources have been developed and used;
2) recognize and assess local, regional, and global patterns of resource use;
3) understand the varying capacities of physical systems, such as watersheds, to support human activity;
4) determine the influence of human perceptions on resource utilization and the environment;
5) analyze the consequences of human modification of the environment and evaluate the changing landscape; and
6) evaluate the impact of physical hazards on human systems.



A student should be able to use geography to understand the world by interpreting the past, knowing the present, and preparing for the future.

A student who meets the content standard should:

1) analyze and evaluate the impact of physical and human geographical factors on major historical events;
2) compare, contrast, and predict how places and regions change with time;
3) analyze resource management practices to assess their impact on future environmental quality;
4) interpret demographic trends to project future changes and impacts on human environmental systems;
5) examine the impacts of global changes on human activity; and
6) utilize geographic knowledge and skills to support interdisciplinary learning and build competencies required of citizens.

GOVERNMENT AND CITIZENSHIP

A student should know and understand how societies define authority, rights, and responsibilities through a governmental process.

A student who meets the content standard should:

1) understand the necessity and purpose of government;
2) understand the meaning of fundamental ideas, including equality, authority, power, freedom, justice, privacy, property, responsibility, and sovereignty;
3) understand how nations organize their governments; and
4) compare and contrast how different societies have governed themselves over time and in different places.

A student should understand the constitutional foundations of the American political system and the democratic ideals of this nation.

A student who meets the content standard should:

1) understand the ideals of this nation as expressed in the Declaration of Independence, the United States Constitution, and the Bill of Rights;
2) recognize American heritage and culture, including the republican form of government, capitalism, free enterprise system, patriotism, strong family units, and freedom of religion;
3) understand the United States Constitution, including separation of powers, the executive, legislative, and judicial branches of government, majority rule, and minority rights;
4) know how power is shared in the United States' constitutional government at the federal, state, and local levels;
5) understand the importance of individuals, public opinion, media,

political parties, associations, and groups in forming and carrying out public policy;
6) recognize the significance of diversity in the American political system;
7) distinguish between constitution-based ideals and the reality of American political and social life;
8) understand the place of law in the American political system; and
9) recognize the role of dissent in the American political system.

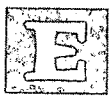
A student should understand the character of government of the state.

A student who meets the content standard should:
1) understand the various forms of the state's local governments and the agencies and commissions that influence students' lives and property;
2) accept responsibility for protecting and enhancing the quality of life in the state through the political and governmental processes;
3) understand the Constitution of Alaska and sec. 4 of the Alaska Statehood Act, which is known as the Statehood Compact;
4) understand the importance of the historical and current roles of Alaska Native communities;
5) understand the Alaska Native Claims Settlement Act and its impact on the state;
6) understand the importance of the multicultural nature of the state;
7) understand the obligations that land and resource ownership place on the residents and government of the state; and
8) identify the roles of and relationships among the federal, tribal, and state governments and understand the responsibilities and limits of the roles and relationships.

A student should understand the role of the United States in international affairs.

A student who meets the content standard should:
1) analyze how domestic politics, the principles of the United States Constitution, foreign policy, and economics affect relations with other countries;
2) evaluate circumstances in which the United States has politically influenced other nations and how other nations have influenced the politics and society of the United States;

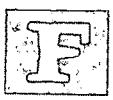
3) understand how national politics and international affairs are interrelated with the politics and interests of the state;
4) understand the purpose and function of international government and non-governmental organizations in the world today; and
5) analyze the causes, consequences, and possible solutions to current international issues.



A student should have the knowledge and skills necessary to participate effectively as an informed and responsible citizen.

A student who meets the content standard should:

1) know the important characteristics of citizenship;
2) recognize that it is important for citizens to fulfill their public responsibilities;
3) exercise political participation by discussing public issues, building consensus, becoming involved in political parties and political campaigns, and voting;
4) establish, explain, and apply criteria useful in evaluating rules and laws;
5) establish, explain, and apply criteria useful in selecting political leaders;
6) recognize the value of community service; and
7) implement ways of solving problems and resolving conflict.



A student should understand the economies of the United States and the state and their relationships to the global economy.

A student who meets the content standard should:

1) understand how the government and the economy interrelate through regulations, incentives, and taxation;
2) be aware that economic systems determine how resources are used to produce and distribute goods and services;
3) compare alternative economic systems;
4) understand the role of price in resource allocation;
5) understand the basic concepts of supply and demand, the market system, and profit;
6) understand the role of economic institutions in the United States, including the Federal Reserve Board, trade unions, banks, investors, and the stock market;

7) understand the role of self-interest, incentives, property rights, competition, and corporate responsibility in the market economy;
8) understand the indicators of an economy's performance, including gross domestic product, inflation, and the unemployment rate;
9) understand those features of the economy of the state that make it unique, including the importance of natural resources, government ownership and management of resources, Alaska Native regional corporations, the Alaska Permanent Fund Corporation, the Alaska Housing Finance Corporation, and the Alaska Industrial Development and Export Authority; and
10) understand how international trade works.

A student should understand the impact of economic choices and participate effectively in the local, state, national, and global economies.

A student who meets the content standard should:

1) apply economic principles to actual world situations;
2) understand that choices are made because resources are scarce;
3) identify and compare the costs and benefits when making choices;
4) make informed choices on economic issues;
5) understand how jobs are created and their role in the economy;
6) understand that wages and productivity depend on investment in physical and human capital; and
7) understand that economic choices influence public and private institutional decisions.

HISTORY

A student should understand that history is a record of human experiences that links the past to the present and the future.

A student who meets the content standard should:

1) understand chronological frameworks for organizing historical thought and place significant ideas, institutions, people, and events within time sequences;
2) know that the interpretation of history may change as new evidence is discovered;
3) recognize different theories of history, detect the weakness of broad generalization, and evaluate the debates of historians;
4) understand that history relies on the interpretation of evidence;
5) understand that history is a narrative told in many voices and expresses various perspectives of historical experience;
6) know that cultural elements, including language, literature, the arts, customs, and belief systems, reflect the ideas and attitudes of a specific time and know how the cultural elements influence human interaction;
7) understand that history is dynamic and composed of key turning points;
8) know that history is a bridge to understanding groups of people and an individual's relationship to society; and
9) understand that history is a fundamental connection that unifies all fields of human understanding and endeavor.

A student should understand historical themes through factual knowledge of time, places, ideas, institutions, cultures, people, and events.

A student who meets the content standard should:

1) comprehend the forces of change and continuity that shape human history through the following persistent organizing themes:
   a. the development of culture, the emergence of civilizations, and the accomplishments and mistakes of social organizations;
   b. human communities and their relationships with climate, subsistence base, resources, geography, and technology;
   c. the origin and impact of ideologies, religions, and institutions upon human societies;
   d. the consequences of peace and violent conflict to societies and their cultures;
   e. major developments in societies as well as changing patterns related to class, ethnicity, race, and gender;
2) understand the people and the political, geographic, economic, cultural, social, and environmental events that have shaped the history of the state, the United States, and the world;
3) recognize that historical understanding is relevant and valuable in the student's life and for participating in local, state, national, and global communities;
4) recognize the importance of time, ideas, institutions, people, places, cultures, and events in understanding large historical patterns; and
5) evaluate the influence of context upon historical understanding.

A student should develop the skills and processes of historical inquiry.

A student who meets the content standard should:

1) use appropriate technology to access, retrieve, organize, and present historical information;
2) use historical data from a variety of primary resources, including letters, diaries, oral accounts, archeological sites and artifacts, art, maps, photos, historical sites, documents, and secondary research materials, including almanacs, books, indices, and newspapers;
3) apply thinking skills, including classifying, interpreting, analyzing, summarizing, synthesizing, and evaluating, to understand the historical record; and
4) use historical perspective to solve problems, make decisions, and understand other traditions.

A student should be able to integrate historical knowledge with historical skill to effectively participate as a citizen and as a lifelong learner.

A student who meets the content standard should:

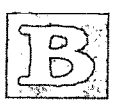
1) understand that the student is important in history;
2) solve problems by using history to identify issues and problems, generate potential solutions, assess the merits of options, act, and evaluate the effectiveness of actions;
3) define a personal position on issues while understanding the historical aspects of the positions and roles assumed by others;
4) recognize and demonstrate that various issues may require an understanding of different positions, jobs, and personal roles depending on place, time, and context;
5) base personal citizenship action on reasoned historical judgment with recognition of responsibility for self and others; and
6) create new approaches to issues by incorporating history with other disciplines, including economics, geography, literature, the arts, science, and technology.

SKILLS FOR A HEALTHY LIFE

A student should be able to acquire a core knowledge related to well-being.

A student who meets the content standard should:

1) understand that a person's well-being is the integration of health knowledge, attitudes, and behaviors;
2) understand how the human body is affected by behaviors related to eating habits, physical fitness, personal hygiene, harmful substances, safety, and environmental conditions;
3) understand and identify the causes, preventions, and treatments for diseases, disorders, injuries, and addictions;
4) recognize patterns of abuse directed at self or others and understand how to break these patterns;
5) use knowledge and skills to promote the well-being of the family;
6) use knowledge and skills related to physical fitness, consumer health, independent living, and career choices to contribute to well-being;
7) understand the physical and behavioral characteristics of human sexual development and maturity; and
8) understand the ongoing life changes throughout the life span and healthful responses to these changes.



A student should be able to demonstrate responsibility for the student's well-being.

A student who meets the content standard should:

1) demonstrate an ability to make responsible decisions by discriminating among risks and by identifying consequences;
2) demonstrate a variety of communication skills that contribute to well-being;

3) assess the effects of culture, heritage, and traditions on personal well-being;
4) develop an awareness of how personal life roles are affected by and contribute to the well-being of families, communities, and cultures;
5) evaluate what is viewed, read, and heard for its effect on personal well-being; and
6) understand how personal relationships, including those with family, friends, and co-workers, impact personal well-being.

A student should understand how well-being is affected by relationships with others.

A student who meets the content standard should:

1) resolve conflicts responsibly;
2) communicate effectively within relationships;
3) evaluate how similarities and differences among individuals contribute to relationships;
4) understand how respect for the rights of self and others contributes to relationships;
5) understand how attitude and behavior affect the well-being of self and others; and
6) assess the effects of culture, heritage, and traditions on well-being.

A student should be able to contribute to the well-being of families and communities.

A student who meets the content standard should:

1) make responsible decisions as a member of a family or community;
2) take responsible actions to create safe and healthy environments;
3) describe how public policy affects the well-being of families and communities;
4) identify and evaluate the roles and influences of public and private organizations that contribute to the well-being of communities;
5) describe how volunteer service at all ages can enhance community well-being; and
6) use various methods of communication to promote community well-being.

ARTS

A student should be able to create and perform in the arts.

A student who meets the content standard should:

1) participate in dance, drama, music, visual arts, and create writing;
2) refine artistic skills and develop self-discipline through rehearsal, practice, and revision;
3) appropriately use new and traditional materials, tools, techniques, and processes in the arts;
4) demonstrate the creativity and imagination necessary for innovative thinking and problem solving;
5) collaborate with others to create and perform works of art;
6) integrate two or more art forms to create a work of art; and
7) investigate careers in arts production.

A student should be able to understand the historical and contemporary role of the arts in Alaska, the nation, and the world.

A student who meets the content standard should:

1) recognize Alaska Native cultures and their arts;
2) recognize United States and world cultures and their arts;
3) recognize the role of tradition and ritual in the arts;
4) investigate the relationships among the arts and the individual, the society, and the environment;
5) recognize universal themes in the arts such as love, war, childhood, and community;
6) recognize specific works of art created by artists from diverse backgrounds;

7) explore similarities and differences in the arts of world cultures;
8) respect differences in personal and cultural perspectives; and
9) investigate careers relating to arts history and culture.

A student should be able to critique the student's art and the art of others.

A student who meets the content standard should:

1) know the criteria used to evaluate the arts; these may include craftsmanship, function, organization, originality, technique, and theme;
2) examine historical and contemporary works of art, the works of peers, and the student's own works as follows:
   a. identify the piece;
   b. describe the use of basic elements;
   c. analyze the use of basic principles;
   d. interpret meaning and artist's intent;
   e. express and defend an informed opinion;
3) accept and offer constructive criticism;
4) recognize and consider an individual's artistic expression;
5) exhibit appropriate audience skills; and
6) investigate careers relating to arts criticism.

A student should be able to recognize beauty and meaning through the arts in the student's life.

A student who meets the content standard should:

1) make statements about the significance of the arts and beauty in the student's life;
2) discuss what makes an object or performance a work of art;
3) recognize that people tend to devalue what they do not understand;
4) listen to another individual's beliefs about a work of art and consider the individual's reason for holding those beliefs;
5) consider other culture's beliefs about works of art;
6) recognize that people connect many aspects of life through the arts;
7) make artistic choices in everyday living; and
8) investigate careers related to the search for beauty and meaning, which is aesthetics.

WORLD LANGUAGES

A student should be able to communicate in two or more languages, one of which is English.

A student who meets the content standard should:

1) understand written and oral communication in two or more languages;
2) write and speak understandably in two or more languages;
3) use two or more languages effectively in real life situations; and
4) use two or more languages to learn new information in academic subjects.

A student should expand the student's knowledge of peoples and cultures through language study.

A student who meets the content standard should:

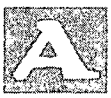
1) understand the relationship between language and culture;
2) learn about and experience surface characteristics of the culture, including art, cuisine, dance, dress, geography, history, music, and literature;
3) learn about and experience deep characteristics of the culture, including folkways, mores, laws, traditions, customs, and patterns of behavior;
4) improve the student's understanding of the student's language and culture through experiences with other languages and cultures;
5) apply knowledge of the functions and structure of one language to the study of another language; and
6) recognize through language study that all cultures contribute to the global society.

A student should possess the language skills and cultural knowledge necessary to participate successfully in multilingual communities and the international marketplace.

A student who meets the content standard should:

1) interact appropriately in multilingual communities through various means, including printed and electronic media, audio and visual sources, face-to-face conversations, penpals, and travel;
2) use experiences with language and culture to explore the student's personal interests and career options;
3) learn how language skills and cultural knowledge enhance a person's competitiveness in the international marketplace; and
4) apply language skills and cultural knowledge to enhance the student's intellectual and social growth and to promote life-long learning.

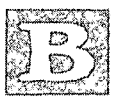
TECHNOLOGY



A student should be able to operate technology-based tools.

A student who meets the content standard should:

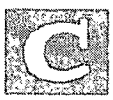
1) use a computer to enter and retrieve information;
2) use technological tools for learning, communications, and productivity;
3) use local and world-wide networks;
4) manage and maintain technology tools; and
5) diagnose and solve common technology problems.



A student should be able to use technology to locate, select, and manage information.

A student who meets the content standard should:

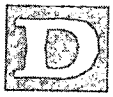
1) identify and locate information sources using technology;
2) choose sources of information from a variety of media; and
3) select relevant information by applying accepted research methods.



A student should be able to use technology to explore ideas, solve problems, and derive meaning.

A student who meets the content standard should:

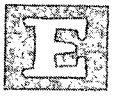
1) use technology to observe, analyze, interpret, and draw conclusions;
2) solve problems both individually and with others; and
3) create new knowledge by evaluating, combining, or extending information using multiple technologies.



A student should be able to use technology to express ideas and exchange information.

A student who meets the content standard should:

1) convey ideas to a variety of audiences using publishing, multimedia, and communications tools;
2) use communications technology to exchange ideas and information; and
3) use technology to explore new and innovative methods for interaction with others.



A student should be able to use technology responsibly and understand its impact on individuals and society.

A student who meets the content standard should:

1) evaluate the potentials and limitations of existing technologies;
2) discriminate between responsible and irresponsible uses of technology;
3) respect others' rights of privacy in electronic environments;
4) demonstrate ethical and legal behavior regarding intellectual property, which is the manifestation of an original idea, such as computer software, music, or literature;
5) examine the role of technology in the workplace and explore careers that require the use of technology;
6) evaluate ways that technology impacts culture and the environment;
7) integrate the use of technology into daily living; and
8) recognize the implications of emerging technologies.

EMPLOYABILITY

A student should be able to develop and be able to use employability skills in order to effectively make the transition from school to work and life-long learning.

A student who meets the content standard should:

1) develop and maintain a work ethic necessary for success in the workplace that includes honesty, integrity, dependability, punctuality, self discipline, initiative, reliability, accuracy, productivity, respect and perseverance;
2) understand how to apply skills and academic knowledge in a variety of work settings;
3) understand the process for seeking employment including resume development, application completion, interview skills and appropriate dress for work settings;
4) understand the process for developing self-employment opportunities including marketing studies, business plan development, and managing business finances;
5) understand how an individual job fits into the overall organization and how the organization fits into the overall economy;
6) understand the need for safe practices in workplaces, and;
7) understand employer and employee rights and responsibilities.

A student should be able to identify career interests and plan for career options.

A student who meets the content standard should:

1) identify and appreciate personal interests, aptitudes, abilities, and priorities;

2) identify possible career options, considering both employment and self employment and understand how changes in the workplace affect career choice;
3) use labor market information to identify occupational and economic trends and opportunities, and evaluate possible career options;
4) identify education and/or training needed for career options and advancement, and develop a career plan, and;
5) identify resources available to support education and training related to career possibilities.

LIBRARY/INFORMATION LITERACY

A student should understand how information and resources are organized.

A student who meets the content standard should:

1) recognize that libraries use classification systems to organize, store and provide access to information and resources;
2) understand how library classification and subject heading systems work;
3) understand how information in print, non-print and electronic formats is organized and accessed;
4) search for information and resources by author, title, subject or keyword, as appropriate; and
5) identify and use search strategies and terms that will produce successful results.

A student should understand and use research processes necessary to locate, evaluate and communicate information and ideas.

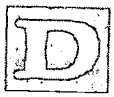
A student who meets the content standard should:

1) state a problem, question or information need;
2) consider the variety of available resources and determine which are most likely to be useful;
3) access information;
4) evaluate the validity, relevancy, currency and accuracy of information;
5) organize and use information to create a product; and
6) evaluate the effectiveness of the product to communicate the intended message.

A student should recognize that being an independent reader, listener, and viewer of material in print, non-print, and electronic formats will contribute to personal enjoyment and lifelong learning.

A student who meets the content standard should:

1) read for pleasure and information;
2) read, listen, and view a wide variety of literature and other creative expressions; and
3) recognize and select materials appropriate to personal abilities and interests.



A student should be aware of the freedom to seek information and possess the confidence to pursue information needs beyond immediately available sources.

A student who meets the content standard should:

1) know how to access information through local, national and international sources in printed and electronic formats;
2) recognize the importance of access to information and ideas in a democratic society;
3) access information on local, state, national and world cultures and issues;
4) evaluate information representing diverse views in order to make informed decisions; and
5) assimilate and understand how newly acquired information relates to oneself and others.

A student should understand ethical, legal and social behavior with respect to information resources.

A student who meets the content standard should:

1) use library materials and information resources responsibly;
2) understand and respect the principles of intellectual freedom;
3) understand and respect intellectual property rights and copyright laws; and
4) develop and use citations and bibliographies.

CULTURAL STANDARDS FOR ALASKA STUDENTS

The Alaska Cultural Standards for Students were developed by the Alaska Native Knowledge Network in 1998. They also were adopted by the State Board of Education & Early Development in the same year. The standards are meant to enrich the Content Standards and provide guidelines for nurturing and building in students the rich and varied cultural traditions that continue to be practiced in communities throughout Alaska. The standards are broad statements of what students should know and be able to do as a result of their experience in a school that is aware of and sensitive to the surrounding physical and cultural environment.

CULTURAL STANDARDS

Culturally-knowledgeable students are well grounded in the cultural heritage and traditions of their community.

Students who meet this content standard are able to:

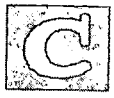
1) assume responsibilities for their role in relation to the well being of the cultural community and their life-long obligations as a community member;
2) recount their own genealogy and family history;
3) acquire and pass on the traditions of their community through oral and written history;
4) practice their traditional responsibilities to the surrounding environment;
5) reflect through their own actions the critical role that the local heritage language plays in fostering a sense of who they are and how they understand the world around them;
6) live a life in accordance with the cultural values and traditions of the local community and integrate them into their everyday behavior, and;
7) determine the place of their cultural community in the regional, state, national, and international political and economic systems.

Culturally-knowledgeable students are able to build on the knowledge and skills of the local cultural community as a foundation from which to achieve personal and academic success throughout life.

Students who meet this cultural standard are able to:

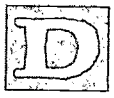
1) acquire insights from other cultures without diminishing the integrity of their own;

2) make effective use of the knowledge, skills, and ways of knowing from their own cultural traditions to learn about the larger world in which they live;
3) make appropriate choices regarding the long-term consequences of their actions, and;
4) identify appropriate forms of technology and anticipate the consequences of their use for improving the quality of life in the community;



Culturally-knowledgeable students are able to actively participate in various cultural environments.

Students who meets this cultural standard are able to:
1) perform subsistence activities in ways that are appropriate to local cultural traditions;
2) make constructive contributions to the governance of their community and the well-being of their family;
3) attain a healthy lifestyle through which they are able to maintain their social, emotional, physical, intellectual, and spiritual well-being, and;
4) enter into and function effectively in a variety of cultural settings.



Culturally-knowledgeable students are able to engage effectively in learning activities that are based on traditional ways of knowing and learning.

Students who meets this cultural standard are able to:
1) acquire in-depth cultural knowledge through active participation and meaningful interaction with Elders;
2) participate in and make constructive contributions to the learning activities associated with a traditional camp environment;
3) interact with Elders in a loving and respectful way that demonstrates an appreciation of their role as culture-bearers and educators in the community;
4) gather oral and written history information from the local community and provide an appropriate interpretation of its cultural meaning and significance;
5) identify and utilize appropriate sources of cultural knowledge to find solutions to everyday problems, and;
6) engage in a realistic self-assessment to identify strengths and needs and make appropriate decisions to enhance life skills.

Culturally-knowledgeable students demonstrate an awareness and appreciation of the relationships and processes of interaction of all elements in the world around them.

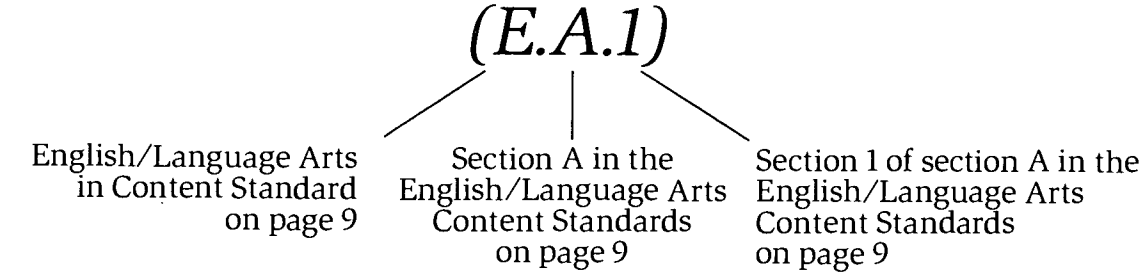
Students who meet this cultural standard are able to:

1) recognize and build upon the inter-relationships that exist among the spiritual, natural and human realms in the world around them, as reflected in their own cultural traditions and beliefs as well as those of others;
2) understand the ecology and geography of the bioregion they inhabit;
3) demonstrate an understanding of the relationship between world view and the way knowledge is formed and used;
4) determine how ideas and concepts from one knowledge system relate to those derived from other knowledge systems;
5) recognize how and why cultures change over time;
6) anticipate the changes that occur when different cultural systems come in contact with one another;
7) determine how cultural values and beliefs influence the interactions of people from different cultural backgrounds, and;
8) identify and appreciate who they are and their place in the world.

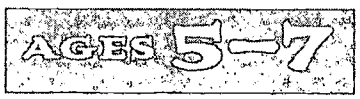
PERFORMANCE STANDARDS FOR ALASKA STUDENTS

Performance Standards are measurable statements of what students should know and be able to do. The State Board of Education & Early Development adopted Performance Standards in reading, writing and mathematics in January 1999. They are presented here at four benchmark levels, for ages 5-7; ages 8-10; ages 11-14; and ages 15-18. Performance Standards, unlike Content Standards, can be measured with a variety of testing instruments. Those listed here, in reading, writing and math, are the basis for the test questions used for the Alaska Benchmark Examinations at the 3rd, 6th and 8th grades and for the Alaska High School Graduation Qualifying Examination.

There is a correlation between the Content Standards and the Performance Standards in this booklet. The Reading and Writing Performance Standards can be linked back to the English/Language Arts Content Standards *(E)* just as the Math Performance Standards can be linked back to the Math Content Standards *(M)*. Following each Performance Standard, is a key containing two letters and one number, such as *(E.A.1)*.



READING



Students: *(to be assessed in 3rd grade)*

1) a. distinguish, reproduce, and manipulate the sounds in words; *(E.B.1)*
   b. use a combination of the following to read and comprehend text:
   - knowledge of phonics, alphabet, and alphabetic principle, e.g. recognition of letter shapes, letter names, letter/sound relationships, initial/final consonants, vowels, letter patterns;
   - pictures and visual cues;
   - sight recognition of high frequency vocabulary words
   - word structure, e.g., root words, prefixes, suffixes, rhyming words
   - language structure, e.g., word order, grammar;
   - meaning structure, e.g., prior knowledge and context;
   - text structure, e.g., read left to right; *(E.B.1)*
2) a. comprehend literal meaning from text; *(E.B.1)*
   b. use a variety of strategies to support comprehension, including predicting, questioning, rereading, and monitoring own comprehension; *(E.B.1)*
3) read texts aloud with expression, demonstrating knowledge of punctuation and other conventions of print; *(E.B.1)*
4) a. Retell or dramatize a story after reading it; *(E.B.1)*
   b. Restate information after reading a text; *(E.B.1)*
5) identify the main idea of a passage; *(E.B.1)*
6) read and follow simple directions to complete a simple task; *(E.C.2)*
7) distinguish between common forms of text (genres):
   - fiction and non-fiction
   - prose and poetry, and
   - short story and drama; *(E.B.2)*

8) identify and describe basic plot, main characters, and setting (time and place) in fiction; *(E.B.2)*
9) express own opinions about texts; *(E.D.1)*
10) make connections between a text and personal experiences, experiences of others, or other texts, and locate details in the text to illustrate these connections; and *(E.B.3)*
11) identify basic cultural influences in texts. *(E.E.1)*

Students know and are able to do everything required at earlier ages and:
(to be assessed in 6th grade)

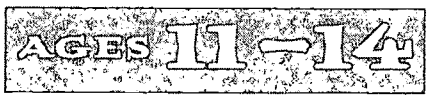
1) a. use a combination of the following to read and comprehend text:
   - knowledge of phonetics, language structure, and semantics;
   - text structures such as illustrations, graphs, and headers;
   - self-monitoring and self-correcting strategies;
   - adjusting reading pace or style based on purpose, task, and type of text. *(E.B.1)*

   b. use knowledge of word families, phonetics, context clues, visual cues, and structural elements to determine meaning of unfamiliar words; *(E.B.1)*
2) infer meaning from text; *(E.B.1)*
3) read texts aloud with rhythm, flow, and expression, demonstrating knowledge of punctuation and other conventions of print; *(E.B.1)*
4) a. retell stories in correct sequence; *(E.B.2)*
   b. restate and summarize information or ideas from a text; *(E.B.2)*
5) locate evidence in the text and from related experiences to support understanding of a main idea; *(E.D.2)*
6) read and follow multi-step directions to complete simple task; *(E.C.2)*
7) explain the characteristics of the following:
   - fiction and non-fiction,
   - prose and poetry, and
   - four major genres of fiction: short story, drama, novel, and poetry; *(E.B.2)*
8) a. define and identify plots, settings, and characters in fiction; *(E.B.2)*
   b. compare and contrast plots, settings, and characters in a variety of works by a variety of authors. *(E.B.2)*
9) a. differentiate between fact and opinion; *(E.D.2)*

b. express opinions about a text and support these opinions with textual evidence; *(E.D.2)*

10) identify themes in texts and connect them to personal experiences, experiences of others, and other texts; and *(E.B.3)*

11) connect cultural events, ideas, settings, and influences from one text to similar texts from other cultures. *(E.E.1)*



Students know and are able to do everything required at earlier ages and:
(to be assessed in 8th grade)

1) apply knowledge of word origins, structure and context clues, and root words, and use dictionaries and glossaries, to determine the meaning of new words and to comprehend text; *(E.B.1)*

2) rehearse and read texts aloud to an audience, in performances such as readers theater, reading to younger students or peers, or as part of formal presentations including research reports and literature responses; *(E.B.1)*

3) restate and summarize information or ideas from a text and connect new information or ideas to prior knowledge and experience; *(E.B.3)*

4) clarify and connect main ideas and concepts, identify their relationship to other sources and related topics, and provide supporting details; *(E.B.2)*

5) read and follow multi-step directions to complete a task, and identify the sequence prescribed; *(E.C.2)*

6) analyze basic rules (conventions) of the four genres of fiction (short story, drama, novel, and poetry); *(E.B.2)*

7) analyze and evaluate narrative elements including plot, character, setting, and point of view to determine their importance to the story; *(E.B.2)*

8) a. differentiate between fact and opinion in text; *(E.D.2)*

b. analyze an author's purpose and offer a critical opinion of the effectiveness of the text in meeting that purpose; *(E.D.2)*

9) connect themes to personal experiences, experiences of others, and other texts, and locate evidence from texts to support or illustrate these connections; and *(E.B.3)*

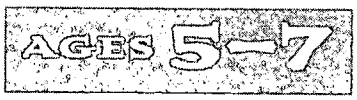
10) compare and contrast how texts reflect historical and cultural influences. *(E.E.1)*

AGES 15–18

Students know and are able to do everything required at earlier ages and:
(High School Qualifying Exam)

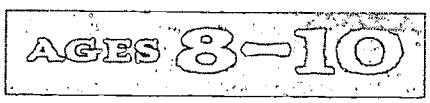
1) apply knowledge of syntax, roots, and word origins, and use context clues and reference materials, to determine the meaning of new words and to comprehend text; *(E.B.1)*
2) summarize information or ideas from a text and make connections between summarized information or sets of ideas and related topics or information; *(E.B.3)*
3) a. identify and assess the validity, accuracy, and adequacy of evidence that supports an author's main ideas; *(E.D.2)*
   b. critique the power, logic, reasonableness, and audience appeal of arguments advanced in public documents; *(E.D.2)*
4) read and follow multi-step directions to complete complex tasks; *(E.C.2)*
5) analyze the rules (conventions) of the four genres of fiction (short story, drama, novel and poetry) and the techniques used in these genres, and evaluate the effects of these conventions and techniques on the audience; *(E.B.2)*
6) analyze and evaluate how authors use narrative elements and tone in fiction for specific purposes; *(E.B.2)*
7) express and support assertions, with evidence from the text or experience, about the effectiveness of a text; *(E.D.4)*
8) analyze and evaluate themes across a variety of texts, using textual and experiential evidence; and *(E.B.3)*
9) analyze the effects of cultural and historical influences on texts. *(E.E.1)*

WRITING



Students: *(to be assessed in 3rd grade)*

1) a. write complete sentences with a subject and a predicate; *(E.A.1)*
   b. write a paragraph with a topic sentence and supporting details; *(E.A.2)*
   c. write short stories or compositions with a beginning, middle, and end; *(E.A.1)*
2) write for a specific audience, including self, other children, parents, and other adults; *(E.A.4)*
3) a. use a variety of simple sentence structures, and basic rules of punctuation and capitalization in written work; *(E.A.2)*
   b. proofread writing for legibility, spelling, capitalization, and punctuation when producing final drafts; *(E.A.5)*
4) a. revise writing for detail and clarity; *(E.A.5)*
   b. provide appropriate feedback to peers about written work; and *(E.A.8)*
5) list titles and authors of books and other materials when used as references in written work. *(E.D.3)*



Students know and are able to do everything required at earlier ages and:
(to be assessed in 6th grade)

1) write a well organized two-paragraph composition that addresses a single topic; *(E.A.1)*
2) use a variety of fiction and non-fiction forms when writing for different audiences; *(E.A.4)*

3) a. use a variety of simple and complex sentence structures in written work; *(E.A.2)*
   b. proofread and correct grammar, sentence structure, paragraph structure, punctuation, capitalization, spelling, and usage in finished written work; *(E.A.5)*
4) a. revise writing to improve the logical progression of ideas and supporting information; *(E.A.5)*
   b. revise own and others' work and provide appropriate feedback to peers based upon established criteria, to improve quality and effectiveness of writing; *(E.A.8)*
5) give credit for others' ideas, images, and information by citing information about sources, including title and author; and *(E.D.3)*
6) use resources such as computers, word processing software, dictionaries, and thesauruses to make choices when writing. *(E.A.7)*

AGES 11–14

Students know and are able to do everything required at earlier ages and:
(to be assessed in 8th grade)

1) write a coherent composition that includes a thesis statement, supporting evidence, and a conclusion; *(E.A.1)*
2) select and use appropriate forms of fiction and non-fiction to achieve different purposes when writing for different audiences; *(E.A.4)*
3) use the conventions of standard English including grammar, sentence structure, paragraph structure, punctuation, spelling, and usage in written work; *(E.A.2)*
4) a. revise writing to improve organization, word choice, paragraph development, and voice appropriate to the purpose; *(E.A.5)*
   b. form and explain own standards or judgments of quality writing; *(E.A.8)*
5) list and document sources using a given format; and *(E.D.3)*
6) compose and edit a composition with a word processing program. *(E.A.7)*

AGES 15–18

Students know and are able to do everything required at earlier ages and:
(High School Qualifying Exam)

1) write a coherent composition with a thesis statement that is supported with evidence, well-developed paragraphs, transitions, and a conclusion; *(E.A.1)*
2) demonstrate understanding of elements of discourse (purpose, speaker, audience, form) when completing expressive (creative, narrative, descriptive), persuasive, research-based, informational, or analytic writing assignments; *(E.A.4)*
3) use the conventions of standard English independently and consistently including grammar, sentence structure, paragraph structure, punctuation, spelling, and usage; *(E.A.2)*
4) revise writing to improve style, word choice, sentence variety, and subtlety of meaning in relation to the purpose and audience; and *(E.A.5)*
5) cite sources of information using a standard method of documentation. *(E.D.3)*

MATHEMATICS

AGES 5-7

Students: *(to be assessed in 3rd grade)*

NUMERATION (Ages 5-7)

1) read, write, order, count, and model one-to-one correspondence with whole numbers to 100; *(M.A.1)*
2) use, model, and identify place value positions of 1's, 10's, and 100's; *(M.A.1)*
3) model and explain the processes of addition and subtraction, describing the relationship between the operations; *(M.A.1)*
4) select and use various representations of ordinal and cardinal numbers; *(M.A.1)*
5) identify, model, and label simple fractions, describing and defining them as equal parts of a whole, a region, or a set; *(M.A.1)*
6) identify, describe, and extend patterns inherent in the number system. Skip count by 2's, 5's and 10's. Add and subtract by 10. Identify even and odd numbers; and *(M.A.1)*
7) demonstrate the commutative and identity properties of addition. *(M.A.1)*

MEASUREMENT (Ages 5-7)

1) compare and order objects by various measurable attributes including calendar, temperature, length, weight, capacity, area, and volume; *(M.A.2)*
2) compare objects to standard and non-standard units to identify objects that are greater than, less than, and equal to, a given unit; *(M.A.2)*

3) choose a unit of measure, estimate the length or weight of objects and then measure to check for reasonableness; *(M.A.2)*
4) tell time to the nearest half hour, distinguishing between morning, afternoon, and evening; and *(M.A.2)*
5) identify coins, their value, and the value of given sets of coins. *(M.A.2)*

ESTIMATION AND COMPUTATION (Ages 5-7)

1) make reasonable estimates of "how many" and "how much"; estimate the results of simple addition and subtraction problems; *(M.A.3)*
2) recall and use basic addition and subtraction facts orally and with paper and pencil without a calculator; *(M.A.3)*
3) add and subtract whole numbers to 100 using a variety of models and algorithms; and *(M.A.3)*
4) model multiplication as repeated addition and grouping objects; model division as "sharing equally" and grouping objects. *(M.A.3)*

FUNCTION AND RELATIONSHIPS (Ages 5-7)

1) recognize, describe, create, and extend repeating and increasing patterns with a variety of materials including symbols, objects, and manipulatives; *(M.A.4)*
2) generate and solve simple functions by identifying and applying addition and subtraction patterns; *(M.A.4)*
3) use a calculator to find and extend patterns in the number system; and *(M.A.4)*
4) complete open space sentences with missing numbers; use appropriate vocabulary including greater than, less than, and equal to; and use the correct symbols. *(M.A.4)*

GEOMETRY (Ages 5-7)

1) identify, sort, describe, model, and compare circles, triangles, and rectangles including squares regardless of orientation; *(M.A.5)*
2) identify, sort, describe, model, and compare solid figures including cubes, cylinders, and spheres; *(M.A.5)*
3) identify and create examples of line symmetry; compare and describe given circles, triangles, and rectangles as larger, smaller, or congruent; *(M.A.5)*
4) demonstrate conservation of area using drawings or manipulatives; *(M.A.5)*

5) describe and identify geometric transformations including slides, flips, and turns; *(M.A.5)*
6) use comparative directional and positional words: above, below, inside, outside, on, in, right and left, horizontal, vertical, and middle; and *(M.A.5)*
7) draw and build familiar shapes. *(M.A.5)*

STATISTICS/PROBABILITY (Ages 5-7)

1) collect, record, organize, display, and explain the classification of data;
2) describe data from a variety of visual displays including tallies, tables, pictographs, bar graphs, and Venn diagrams; *(M.A.6)*
3) use the terms "maximum" and "minimum" when working with a data set; *(M.A.6)*
4) find and record the possibilities of simple probability experiments; explain differences between chance and certainty, giving examples; and *(M.A.6)*
5) conduct a survey and tally the results. *(M.A.6)*

PROBLEM-SOLVING (Ages 5-7)

1) formulate problems from practical and mathematical activities; *(M.B.1)*
2) develop and apply strategies including guess and check, modeling and acting out, drawings, and extending patterns to solve a variety of problems; and *(M.B.1)*
3) predict an answer before solving a problem and compare results to check for reasonableness. *(M.B.1)*

COMMUNICATION (Ages 5-7)

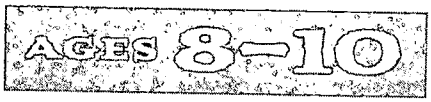
1) translate problems from everyday language into math language and symbols; *(M.C.1)*
2) use manipulatives, models, pictures, and language to represent and communicate mathematical ideas; and *(M.C.1)*
3) use everyday language to explain thinking about problem solving strategies and solutions to problems. *(M.C.1)*

REASONING (Ages 5-7)

1) draw conclusions about mathematical problems; *(M.D.1)*
2) find examples that support or refute mathematical statements; and *(M.D.1)*
3) explain why a prediction, estimation, or solution is reasonable. *(M.D.1)*

CONNECTIONS (Ages 5-7)

1) apply mathematical skills and processes to literature; and *(M.E.1)*
2) apply mathematical skills and processes to situations with self and family. *(M.E.1)*



Students know and are able to do everything required at earlier ages and:
(to be assessed in 6th grade)

NUMERATION (Ages 8-10)

1) read, write, model, order, and count with positive whole numbers to 1,000,000 and negative whole numbers; *(M.A.1)*
2) use, model, and identify place value positions from 0.001 to 1,000,000; *(M.A.1)*
3) model and explain the processes of multiplication and division. Describe the relationships among the four basic operations; *(M.A.1)*
4) identify and describe different uses for the same numerical representation; *(M.A.1)*
5) model and explain the process of adding and subtracting fractions with common denominators and decimals that represent money; *(M.A.1)*
6) identify and describe factors and multiples including those factors and multiples common to a pair or set of numbers; and *(M.A.1)*
7) demonstrate the commutative and identity properties of multiplication. *(M.A.1)*

MEASUREMENT (Ages 8-10)

1) estimate and measure weights, lengths, and temperatures to the nearest unit using the metric and standard systems; *(M.A.2)*

2) identify and use equivalent measurements (e.g. 60 minutes = 1 hour, 7 days = 1 week); *(M.A.2)*
3) use a variety of measuring tools; describe the attribute(s) they measure; *(M.A.2)*
4) estimate and measure the dimensions of geometric figures; *(M.A.2)*
5) tell time using analog and digital clocks identifying AM and PM; find elapsed time; and *(M.A.2)*
6) read, write, and use money notation, determining possible combinations of coins and bills equal to given amounts; count back change for any given situation. *(M.A.2)*

ESTIMATION AND COMPUTATION (Ages 8-10)

1) describe and use a variety of estimation strategies including rounding to the appropriate place value, multiplying by powers of 10, and using front-end estimation to check the reasonableness of solutions; *(M.A.3)*
2) recall and use basic multiplication and division facts orally, with paper and pencil without a calculator; *(M.A.3)*
3) add and subtract whole number and fractions with common denominators to 12 and decimals, including money amounts, using models and algorithms; *(M.A.3)*
4) multiply and divide multi-digit whole numbers by 2-digit numbers, limiting the 2-digit divisors to those that end in 0; multiply and divide decimals that represent money by whole numbers; *(M.A.3)*
5) find equivalent fractions; convert between fractions and mixed numbers; and *(M.A.3)*
6) develop and interpret scales and scale models. *(M.A.3)*

FUNCTION AND RELATIONSHIPS (Ages 8-10)

1) use patterns and their extensions to make predictions and solve problems; describe patterns found in the number system including those formed by multiples, factors, perfect squares, and powers of 10; *(M.A.4)*
2) generate and solve simple functions by identifying and applying multiplication and division patterns; *(M.A.4)*
3) use a calculator to find a missing item in a number sequence; *(M.A.4)*
4) use words, lists, and tables to represent and analyze patterns; and *(M.A.4)*
5) explain the purpose of variables and use them in open sentences to express relationships and describe simple functions. *(M.A.4)*

GEOMETRY (Ages 8-10)

1) identify and compare various triangles and quadrilaterals according to their sides and/or angles; *(M.A.5)*
2) compare and contrast plane and solid figures (e.g., circle/sphere, square/cube, triangle/pyramid) using relevant attributes, including the number of vertices, edges, and the number and shape of faces; *(M.A.5)*
3) identify and model geometric figures that are congruent, similar, and/or symmetrical; *(M.A.5)*
4) distinguish between area and perimeter; find both using a variety of methods including rulers, grid paper, and tiles; *(M.A.5)*
5) identify and model transformations of geometric figures, describing the motions as slides, flips, or rotations; *(M.A.5)*
6) locate and describe objects in terms of their position with and without compass directions; identify coordinates for a given point or locate points of given coordinates on a grid; and *(M.A.5)*
7) sketch and identify line segments, midpoint, intersections, parallel, and perpendicular lines. *(M.A.5)*

STATISTICS/PROBABILITY (Ages 8-10)

1) collect, organize, and display data creating a variety of visual displays including tables, charts, and line graphs; *(M.A.6)*
2) present the data using a variety of appropriate representations and explain the meaning of the data; *(M.A.6)*
3) describe and interpret a data set using mean, median, mode, and range; *(M.A.6)*
4) estimate whether a game is mathematically fair or unfair; analyze and present probability data using simple fractions; and *(M.A.6)*
5) conduct simple probability experiments using concrete materials and represent the results using fractions and probability. *(M.A.6)*

PROBLEM-SOLVING (Ages 8-10)

1) read and summarize a problem, using mathematical terms and symbols; *(M.B.1)*
2) select and apply a variety of strategies including making a table, chart or list, drawing pictures, making a model, and comparing with previous experience to solve problems; and *(M.B.1)*
3) explain and verify results of the original problem and apply what was learned to new situations; *(M.B.1)*

COMMUNICATION (Ages 8-10)

1) use the mathematical vocabulary appropriate to the problem; *(M.C.1)*
2) represent mathematical and practical situations using concrete, pictorial, and symbolic representation; and *(M.C.1)*
3) organize and communicate mathematical problem solving strategies and solutions to problems. *(M.C.1)*

REASONING (Ages 8-10)

1) draw logical conclusions about mathematical situations; *(M.D.1)*
2) given a rule or generalization, determine whether the example fits; and *(M.D.1)*
3) justify answers and mathematical strategies as reasonable. *(M.D.1)*

CONNECTIONS (Ages 8-10)

1) apply mathematical processes to social studies; and *(M.E.1)*
2) apply mathematical skills and processes to situations with friends and school. *(M.E.1)*

AGES 11-14

Students know and are able to do everything required at earlier ages and:
(to be assessed in 8th grade)

NUMERATION (Ages 11-14)

1) read, write, model, and order real numbers, explaining scientific notation, exponents, and percents; *(M.A.1)*
2) model counting in a different base system; *(M.A.1)*
3) translate between equivalent representations of the same number; Select a representation that is appropriate for the situation; *(M.A.1)*
4) describe and model the relationship of fractions to decimals, percents, ratios, and proportions; *(M.A.1)*
5) use, explain, and define the rules of divisibility, prime and composite numbers, multiples, and order of operations; and *(M.A.1)*
6) use commutative, identity, associative, and distributive properties with variables. *(M.A.1)*

MEASUREMENT (Ages 11-14)

1) estimate and measure various dimensions to a specified degree of accuracy; *(M.A.2)*
2) estimate and convert measurements within the same system. *(M.A.2)*
3) use a variety of methods and tools to construct and compare plane figures; *(M.A.2)*
4) describe and apply the relationships between dimensions of geometric figures to solve problems using indirect measurement; describe and apply the concepts of rate and scale; and *(M.A.2)*
5) apply information about time zones and elapsed time to solve problems. *(M.A.2)*

ESTIMATION AND COMPUTATION (Ages 11-14)

1) apply, explain, and assess the appropriateness of a variety of estimation strategies including truncating and rounding to compatible numbers; *(M.A.3)*
2) apply basic operations efficiently and accurately, using estimation to check the reasonableness of results; *(M.A.3)*
3) add and subtract fractions, decimals, and percents; *(M.A.3)*
4) multiply and divide rational numbers in various forms including fractions, decimals, and percents; *(M.A.3)*
5) convert between equivalent fractions, decimals, percents, and proportions. Convert from exact to decimal representations of irrational numbers; and *(M.A.3)*
6) solve problems using ratios and proportions. *(M.A.3)*

FUNCTION AND RELATIONSHIPS (Ages 11-14)

1) identify numeric and geometric patterns, to find the next term and predict the nth term; *(M.A.4)*
2) identify and describe how a change in one variable in a function affects the remaining variables (e.g., how changing the length affects the area and volume of a rectangular prism); *(M.A.4)*
3) use a calculator to find a missing item in an arithmetic and a geometric sequence; predict the graph of each function; *(M.A.4)*
4) translate among and use tables of ordered pairs, graphs on coordinate planes, and linear equations as tools to represent and analyze patterns; and *(M.A.4)*
5) find the value of a variable by evaluating formulas and algebraic expressions for given values. *(M.A.4)*

GEOMETRY (Ages 11-14)

1) identify, classify, compare, and sketch regular and irregular polygons; *(M.A.5)*
2) model, identify, draw, and describe 3-dimensional figures including tetrahedrons, dodecahedrons, triangular prisms, and rectangular prisms; *(M.A.5)*
3) apply the properties of equality and proportionality to solve problems involving congruent or similar shapes; *(M.A.5)*
4) estimate and determine volume and surface areas of solid figures using manipulatives and formulas; estimate and find circumferences and areas of circles; *(M.A.5)*
5) draw and describe the results of transformations including translations (slides), rotations (turns), reflections (flips), and dilations (shrinking or enlarging); *(M.A.5)*
6) use coordinate geometry to represent and interpret relationships defined by equations and formulas including distance and midpoint; and *(M.A.5)*
7) draw, measure, and construct geometric figures including perpendicular bisectors, polygons with given dimensions and angles, circles with given dimensions, perpendicular and parallel lines. *(M.A.5)*

STATISTICS/PROBABILITY (Ages 11-14)

1) collect, analyze, and display data in a variety of visual displays including frequency distributions, circle graphs, box and whisker plots, stem and leaf plots, histograms, and scatter plots with and without technology; *(M.A.6)*
2) interpret and analyze information found in newspapers, magazines, and graphical displays; *(M.A.6)*
3) determine and justify a choice of mean, median, or mode as the best representation of data for a practical situation; *(M.A.6)*
4) make projections based on available data and evaluate whether or not inferences can be made given the parameters of the data; *(M.A.6)*
5) use tree diagrams and sample spaces to make predictions about independent events; and *(M.A.6)*
6) design and conduct a simulation to study a problem and communicate the results. *(M.A.6)*

PROBLEM-SOLVING (Ages 11-14)

1) analyze and summarize a problem using the relationships between the known facts and unknown information; *(M.B.1)*

2) select, modify, and apply a variety of problem-solving strategies including graphing, inductive and deductive reasoning, Venn diagrams, and spreadsheets; and *(M.B.1)*
3) evaluate, interpret, and justify solutions to problems. *(M.B.1)*

COMMUNICATION (Ages 11-14)

1) use math vocabulary, symbols, and notation to represent information in the problem; *(M.C.1)*
2) represent a problem numerically, graphically, and symbolically; and translate among these alternative representations; and *(M.C.1)*
3) use appropriate vocabulary, symbols, and technology to explain, justify, and defend mathematical solutions. *(M.C.1)*

REASONING (Ages 11-14)

1) use informal deductive and inductive reasoning in both concrete and abstract contexts; *(M.D.1)*
2) state counterexamples to disprove statements; and *(M.D.1)*
3) justify and defend the validity of mathematical strategies and solutions using examples and counterexamples. *(M.D.1)*

CONNECTIONS (Ages 11-14)

1) apply mathematical skills and processes to science and humanities; and *(M.E.1)*
2) apply mathematical skills and processes to situations with peers and community. *(M.E.1)*

Students know and are able to do everything required at earlier ages and:
(High School Qualifying Exam)

NUMERATION (Ages 15-18)

1) read, write, model, order, and define real numbers and subsets; *(M.A.1)*
2) add in a different base system; *(M.A.1)*
3) compare and contrast the relationship between various applications of the same operation; *(M.A.1)*

4) translate between equivalent representations of the same exponential expression; and *(M.A.1)*
5) recognize, describe, and use properties of the real number system. *(M.A.1)*

MEASUREMENT (Ages 15-18)

1) evaluate measurements for accuracy, precision, and error with respect to the measuring tools, methods, and the computational process; *(M.A.2)*
2) estimate and convert measurements between different systems; *(M.A.2)*
3) apply various measurement systems to describe situations and solve problems; and *(M.A.2)*
4) use indirect methods, including the Pythagorean Theorem and right triangle trigonometry, to find missing dimensions. *(M.A.2)*

ESTIMATION AND COMPUTATION (Ages 15-18)

1) use estimation to solve problems and to check the accuracy of solutions; state whether the estimation is greater or less than the exact answer; *(M.A.3)*
2) add and subtract real numbers using scientific notation, powers, and roots; *(M.A.3)*
3) multiply and divide real numbers in various forms including scientific notation, powers, and roots; *(M.A.3)*
4) select, convert, and apply an equivalent representation of a number for a specified situation; and *(M.A.3)*
5) use ratios and proportions to model and solve fraction and percent problems with variables. *(M.A.3)*

FUNCTION AND RELATIONSHIPS (Ages 15-18)

1) identify, graph, and describe the graphs of basic families of functions including linear, absolute value, quadratic, and exponential using a graphing calculator; *(M.A.4)*
2) create and solve linear and quadratic equations and inequalities; *(M.A.4)*
3) create and solve simple systems of equations, algebraically and graphically, using a graphing calculator; *(M.A.4)*

4) use discrete structures, such as networks, matrices, sequences, and iterations as tools to analyze patterns, expressions, and equations; and *(M.A.4)*
5) add, subtract, multiply, divide, and simplify rational expressions; add, subtract, and multiply polynomials. *(M.A.4)*

GEOMETRY (Ages 15-18)

1) identify and use the properties of polygons, including interior and exterior angles, and circles (including angles, arcs, chord, secants, and tangents) to solve problems; *(M.A.5)*
2) create 2-dimensional representations of 3-dimensional objects; *(M.A.5)*
3) identify congruent and similar figures using Euclidean and coordinate geometries; apply this information to solve problems; *(M.A.5)*
4) use transformations to demonstrate geometric properties; *(M.A.5)*
5) use coordinate geometry to graph linear equations, determine slopes of lines, identify parallel and perpendicular lines, and to find possible solutions to sets of equations; and *(M.A.5)*
6) construct geometric models, transformations, and scale drawings using a variety of methods including paper folding, compass, straight edge, protractor, and technology. *(M.A.5)*

STATISTICS/PROBABILITY (Ages 15-18)

1) analyze and draw inferences from a wide variety of data sources that summarize data; constructing graphical displays with and without technology; *(M.A.6)*
2) determine the line of best fit and use it to predict unknown data values; *(M.A.6)*
3) describe data, selecting measures of central tendencies and distribution, to convey information in the data; *(M.A.6)*
4) analyze the validity of statistical conclusions and the use, misuse, and abuse of data caused by a wide variety of factors including choices of scale, inappropriate choices of measures of center, incorrect curve fitting, and inappropriate uses of controls or sample groups; *(M.A.6)*
5) analyze data from multiple events and predict theoretical probability; find and compare experimental and theoretical probability for a simple situation, discussing possible differences between two results; and *(M.A.6)*
6) design, conduct, analyze, and communicate the results of multi-stage probability experiments. *(M.A.6)*

PROBLEM-SOLVING (Ages 15-18)

1) recognize and formulate mathematical problems from within and outside the field of mathematics; *(M.B.1)*
2) apply multi-step, integrated, mathematical problem-solving strategies, persisting until a solution is found or it is clear no solution exits; and *(M.B.1)*
3) verify the answer by using an alternative strategy. *(M.B.1)*

COMMUNICATION (Ages 15-18)

1) use appropriate technology to represent the information and ideas in a problem; *(M.C.1)*
2) use numerical, graphic, and symbolic representations to support oral and written communication about math ideas; and *(M.C.1)*
3) explain, justify, and defend mathematical ideas, solutions, and methods to various audiences. *(M.C.1)*

REASONING (Ages 15-18)

1) follow and evaluate an argument, judging its validity using inductive or deductive reasoning and logic; *(M.D.1)*
2) make and test conjectures; and *(M.D.1)*
3) use methods of proofs including direct, indirect, and counterexamples, to validate conjectures. *(M.D.1)*

CONNECTIONS (Ages 15-18)

1) apply mathematical skills and processes to global issues; and *(M.E.1)*
2) describe how mathematics can be used in knowing how to prepare for careers. *(M.E.1)*

PUBLICATION NOTICE:
This booklet was published by the Department of Education & Early Development. It was printed at a cost of $0.67 per copy in Juneau and paid for with federal and state funds. The Department's intent is to inform Alaskans about education standards adopted by the State Board of Education & Early Development.
Information: 465-2800. *Sixth Printing, February, 2000*

The development of the standards was funded in part by a grant from the U.S. Department of Education, Fund for Innovation in Education Program, and the Eisenhower Mathematics and Science Education Program.

Department of Education
& Early Development
801 W. 10th Street, #200
Juneau, AK 99801-1894

FIRST CLASS MAIL
U.S. POSTAGE
PAID
JUNEAU, AK
Permit No.191

99

Supporting a community of learners where children and families come first.

TM031773

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

REPRODUCTION RELEASE

(Specific Document)

I. DOCUMENT IDENTIFICATION:

Title: Alaska Standards Content + Performance Standards for Alaska Students

Author(s): Alaska Department of Education + Early Development

Corporate Source:

Publication Date: February 2000

II. REPRODUCTION RELEASE:

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, *Resources in Education* (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce and disseminate the identified document, please CHECK ONE of the following three options and sign at the bottom of the page.

The sample sticker shown below will be affixed to all Level 1 documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

1

Level 1 ↑ ☑

Check here for Level 1 release, permitting reproduction and dissemination in microfiche or other ERIC archival media (e.g., electronic) *and* paper copy.

The sample sticker shown below will be affixed to all Level 2A documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2A

Level 2A ↑ ☐

Check here for Level 2A release, permitting reproduction and dissemination in microfiche and in electronic media for ERIC archival collection subscribers only

The sample sticker shown below will be affixed to all Level 2B documents

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE ONLY HAS BEEN GRANTED BY

Sample

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

2B

Level 2B ↑ ☐

Check here for Level 2B release, permitting reproduction and dissemination in microfiche only

Documents will be processed as indicated provided reproduction quality permits.
If permission to reproduce is granted, but no box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Sign here, → please

Signature: Darcy Markovich	Printed Name/Position/Title: DARCY MARKOVICH / EXECUTIVE SECRETARY
Organization/Address: AK Dept of Education + Early Development, 801 West Tenth Street, Suite 200 Juneau AK 99801	Telephone: 907/465-2802 FAX: 907/465-4156
	E-Mail Address: Darcy_Markovich@ed.state.ak.us Date: 8.9.2000

(over)

III. DOCUMENT AVAILABILITY INFORMATION (FROM NON-ERIC SOURCE):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of the document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents that cannot be made available through EDRS.)

Publisher/Distributor:
Address:
Price:

IV. REFERRAL OF ERIC TO COPYRIGHT/REPRODUCTION RIGHTS HOLDER:

If the right to grant this reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:
Address:

V. WHERE TO SEND THIS FORM:

Send this form to the following ERIC Clearinghouse:

However, if solicited by the ERIC Facility, or if making an unsolicited contribution to ERIC, return this form (and the document being contributed) to:

ERIC Processing and Reference Facility
4483-A Forbes Boulevard
Lanham, Maryland 20706

Telephone: 301-552-4200
Toll Free: 800-799-3742
FAX: 301-552-4700
e-mail: ericfac@inet.ed.gov
WWW: http://ericfac.piccard.csc.com