

WHY WE'RE BEHIND

What Top Nations
Teach Their Students
But We Don't

A REPORT BY COMMON CORE

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LETTER FROM THE EXECUTIVE DIRECTOR

THE PLURAL OF ANECDOTE IS DATA,” a political scientist once said. We agree, in part because so many important—and interesting—things defy “counting” and can best be studied via anecdote. The content of education here and abroad is one of them.

That is the conclusion we reached after a year of research into whether America’s mediocre standing on international comparison tests is due to differences between what our students and their peers in other countries are taught. We concentrated on the nine nations that consistently have outranked us on the Programme for International Student Assessment (PISA): Finland, Hong Kong (a territory), South Korea, Canada, Japan, New Zealand, Australia, Netherlands, and Switzerland.¹

But when we went looking for reports or books describing the content of education in these nations we didn’t find much. So we went to the Internet, to embassies, and to ministries of education abroad (virtually) and started collecting national curricula, standards, assessments, school leaving exams—whatever documents gave us the most detailed picture of the expectations those nations set for the content of their students’ education.

As we began examining these materials, it became obvious why national comparisons of educational content are so rare: the research is terribly messy. You have to be comfortable with juggling materials that vary by type, by grade, by level of specificity. Not to mention that policies and practices are constantly changing. National curricula are dropped and then re-embraced a few years later (Japan). Test subjects shift with a change in political leadership (Australia). And this is in addition to the complexities of tracking policies and, of course, considerable language obstacles.

Yet—despite this cacophony—a strong similarity among these high-performing nations is evident. Each of the nations that consistently outrank the United States on the PISA exam provides their students with a comprehensive, content-rich education in the liberal arts and sciences. These nations differ greatly with regard to how

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they accomplish this goal. Some have a national curriculum and standards but no tests, others have both, and some leave everything up to the states. Interestingly, no state-based nation in our sample currently has a national curriculum or standards, though one is attempting to develop some.

So what is the common ingredient across these varied nations? It is not a delivery mechanism or an accountability system that these high-performing nations share: it is a dedication to educating their children deeply in a wide range of subjects.

Our report lists the subjects each nation requires in compulsory education. But it is the raw material—the excerpts from national curricula, standards, and assessments—that conveys the richness of education in these nations:

- Fourth graders in Hong Kong visit an artist’s studio, study Picasso’s *Guernica*, and analyze the works of modernist sculptor Henry Moore.
- Finnish 5th and 6th graders study how the invention of writing changed human life and the impacts of the French Revolution; they trace a topic such as the evolution of trade from prehistory until the 19th century.
- Seventh graders in Korea are expected to know not just about supply and demand, but about equilibrium price theories, property rights, and ways to improve market function.
- Japanese 7th to 9th graders “conduct experiments regarding pressure to discover that pressure is related to the magnitude of a force and the area.”

- Eighth graders from the Canadian province of Ontario are expected to create musical compositions, conduct, and know musical terms in Italian.
- Dutch 12th graders must know enough about seven events connected to the Crimean War to be able to put them in chronological order.
- Canadian 12th graders in British Columbia are expected to identify the author of the words: “Thou art slave to fate, chance, kings, and desperate men” and to what Admiral Nimitz was referring when he said: “Pearl Harbor has now been partially avenged.”
- On a Swiss examination 12th graders write an essay analyzing JFK’s October 1962 proclamation that led to the Cuban Missile Crisis.

These nations’ dedication to providing their students with a content-rich education may be their only commonality. After all, these high-performing nations are scattered across four continents. None shares a border with the others. Three are republics, three parliamentary democracies, two constitutional monarchies, and one the territory of a communist state. They range in population from 4 million (New Zealand) to over 125 million (Japan). The group boasts at least 14 official languages.²

It is of course not possible to prove with absolute certainty, based on the extensive anecdotal evidence we gathered, that a causal link exists between the content of education in these nations and their students’ performance on the PISA exam. Proving such a link would take vastly more data—and more resources—than we had.

But, considering these nations’ enormous geographic, demographic, cultural, and governmental differences, what other explanation could there be? We believe more research should be conducted into the relationship between content and achievement. This research should be done now because if what this report suggests is true—that a comprehensive, content-rich curriculum is the key to high achievement—than we have a lot of work to do here in the United States.

In recent years, America has increasingly embraced

We must join our desire to compete with other nations with a willingness to learn from them.

education policies and practices that have made our children’s education narrower and more basic. The No Child Left Behind Act (NCLB) is part of the cause of this, but is by no means the only culprit. NCLB’s intense focus on reading and math skills has dumbed down the curriculum, but so have trends such as the 21st century skills movement, which promote the teaching of skills such as media savvy and entrepreneurship disconnected from content of any significance.

We must join our desire to compete with other nations with a willingness to learn from them. Common Core hopes that the materials assembled here will encourage that desire to learn.

In addition to extended excerpts from education materials from nine of the world’s top performing nations, this report includes essays from three education experts who found these documents, and the connection they suggest, worth contemplating. Martin West, assistant professor of education, political science, and public policy at Brown University, notes that high-performing countries emphasize liberal arts subjects not included in the PISA exams and criticizes the narrowing of the curriculum in the United States. Education consultant and former teacher Sheila Byrd Carmichael conducts a close examination of the excerpts and asks: “Is it possible that resisting content specificity in standards and assessments is a critical but overlooked aspect of stagnant student achievement both within the U.S and internationally?” And international education expert Eduardo Andere tells us that the best strategy for raising student performance is to do what top performing nations do—provide a deep, comprehensive core curriculum to all students.

This report is not intended to be an endorsement of the idea of national standards or a national test. At

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Common Core, we believe that the content of a student's education has a greater influence on his level of achievement than does delivery or accountability systems. So reform ideas like standards or tests don't impress us unless they make content a priority. Thus far, the debate in this country over those measures has discounted the importance of content. We hope this report will help to change that. But, while we're indeed presenting a wide array of examples of what other nations are doing, we don't want it to be overlooked that most of the nations included in our study are small enough to serve as models for US states.

New Zealand could serve as a model for Kansas or Nevada—Australia a model for Florida or Pennsylvania. In order to help the reader “scale” these nations and make comparisons with states, we've included in each nation's overview a list of which US states are similar in population size and in the number of students enrolled in K-12 schooling. Of course there are numerous variables a state would use to determine if a nation's education system provided a useful model. We provide this most basic information as a starting point.

Lynne Munson

PRESIDENT AND EXECUTIVE DIRECTOR

COMMON CORE

FOREWORD

WE HEAR IT ALL THE TIME: America's competitiveness in the global economy will suffer if our students continue to fall behind their peers abroad.

Many of us in education wince at the idea that schools determine our nation's economic standing. Yet there is no denying that schools do build human capital and do ultimately affect the social and economic well-being of our nation, albeit not in the short run.

Over the years, American students consistently have ranked below those from Finland, Canada, Japan, and at least a dozen other industrialized nations on international tests of mathematics, science, and reading.

The No Child Left Behind Act (NCLB) has done nothing to close this gap. And we suspect that the law may be making matters worse. In part, this is because NCLB has narrowed the curriculum so that most of our students are not acquiring the broad base of knowledge they need to succeed as they advance through school.

While American students are spending endless hours preparing to take tests of their basic reading and math skills, their peers in high-performing nations are reading poetry and novels, conducting experiments in chemistry and physics, making music, and studying important historical issues. We are the only leading industrialized nation that considers the mastery of basic skills to be the goal of K–12 education.

The nations that consistently outrank us on math and science examinations do not owe their success to concentrating solely or even mostly on those subjects. Nor are they focusing relentlessly on skill subjects like reading and math, as we do, shorn of any connection to history, science, or literature.

That is what the researchers who compiled this report have learned. The nations that consistently outrank us on the Programme for International Student Assessment (PISA) deliver a comprehensive, content-rich education to their young citizens. They have adopted a wide range of approaches to getting the job done.

While American students are spending endless hours preparing to take tests of their basic reading and math skills, their peers in high-performing nations are reading poetry and novels, conducting experiments in chemistry and physics, making music, and studying important historical issues. We are the only leading industrialized nation that considers the mastery of basic skills to be the goal of K–12 education.

Hong Kong, Korea, Finland, and Japan each have a national curriculum. Australia is in the process of writing a curriculum and already has national tests. Netherlands and New Zealand have national standards. Switzerland and Canada have school leaving exams that carry high stakes for students on a college-bound track.

These very diverse nations (Hong Kong is a territory, of course) ensure that their students receive a deep education in a broad range of subjects. Why is this important? Because America is on the opposite track. And because cognitive scientists have consistently agreed that the high-performing nations are taking the approach that works.

Learning experts have long recognized that the key to acquiring knowledge and mastering skills is to have a base of background knowledge. The basic principle is known in education as “the Matthew effect,” that is, those

These very diverse nations ensure that their students receive a deep education in a broad range of subjects. Why is this important? Because America is on the opposite track.

who have knowledge get more knowledge, and those who have less, get less (or, the rich get richer, and the poor get poorer).

Background knowledge allows one to acquire new knowledge, to read and comprehend new information, to navigate unfamiliar challenges, to make inferences, and to deduce solutions. Imagine having to play a chess game without knowing how the pieces move, or even the point of the game. Or being told someone's rhetoric sounds "Kennedy-esque" without knowing anything about JFK—or perhaps not even recognizing the initials. Or hearing someone speak of the lessons of Munich without having a clue what the expression refers to. That is the level of puzzlement that people face when they lack background knowledge.

We believe that all of America's schoolchildren deserve to receive the kind of comprehensive, content-rich education that will give them the background knowledge required to effectively pursue their dreams.

We're publishing these excerpts while experts and policymakers debate whether the United States should adopt national standards. We hope this report informs that discussion by focusing it on questions of content that have heretofore been overlooked. We hope as these discussions proceed they avoid the narrow trap created by NCLB and that they recognize the importance of the arts, history, literature, science, geography, civics, foreign languages, and other realms of knowledge and experience

essential to educating our children. This is what we can learn from the nations that are most successful in educating their children.

We at Common Core believe that national standards will not improve education unless they acknowledge that content matters. They could even make education worse by cementing in the status quo. So we're not moved by the idea of standards, per se, until we are convinced that they will be excellent and that they will not encourage continued indifference to the full education that we believe all our students need. We're also nonplussed by the frenzy over "competitiveness." What we have learned from the present study is that the best nations do what is best for their students and that means building a great education system, not just attempting to prepare them for the labor market.

Diane Ravitch
Antonia Cortese
 CO-CHAIRS

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FINLAND



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
2	1	2	2	1	1	5	4	1

Population size:	5,288,719
Student enrollment:	570,689 in 2007
U.S. states with similar statistics:	Connecticut, Oregon

General description of K–12 education:

Compulsory education begins for all children at age seven and ends at age 16. The school year is 190 days long. Finland has a national curriculum called the National Core Curriculum for Basic Education. Teachers carry out assessment in their respective subjects based on objectives and assessment criteria written into the curriculum. There are two tracks for upper secondary education: general and vocational. General upper secondary schooling ends with a national matriculation examination, which include tests in Finnish, Swedish, a foreign language, and one test in either mathematics, humanities, or sciences.

Required subjects:

Finnish, Swedish, literature, foreign languages, environmental studies, civics, religion or ethics, history, social studies, mathematics, physics, chemistry, biology, geography, physical education, music, visual arts, craft, home economics and pupil counseling.

EXCERPTS

The documents included for Finland are excerpts from the national curriculum, obtained from the Finland National Board of Education:

- History—grades 5–6
- Music—grades 5–9
- Physics—grades 7–9
- Chemistry—grades 7–9

FINLAND

Excerpts

NATIONAL CORE CURRICULUM FOR BASIC EDUCATION

History • Grades 5–6

The purpose of history instruction in the fifth and sixth grades of basic education is to familiarize the pupil with the nature, acquisition, and basic concepts of historical knowledge; with their own roots; and with certain historical events and phenomena that have acquired importance, from prehistory to the French Revolution. Instruction in the content defined in the core curriculum underscores the functionality of history and the pupils' ability to place themselves in the past.

OBJECTIVES

The pupils will

- Come to understand that historical information consists of the interpretations of historians, which may change as new sources or methods of examination emerge
- Come to understand various ways of dividing history into eras; they will use the concepts of prehistory, history, antiquity, the Middle Ages, and the modern era correctly
- Learn to recognize changes in the history of their own families or home region, and to depict changes, such as the birth of farming, that are seen as having had a fundamental impact on life
- Learn to identify the continuity of history with the aid of examples
- Learn to present reasons for historical changes.

CORE CONTENT

Historical knowledge and one's own roots

- History of one's family and home region
- Interpreting the meanings of recollections, writings, objects, images, and the construction environment

Prehistoric and historic times and the first advanced cultures

- Living conditions of Stone Age people, and changes in those conditions as a result of the invention of bronze and iron
- Impacts on human life of the commencement of farming, emergence of states, and invention of writing.

Emergence of European civilization

- Society and culture of ancient Athens and Rome

- Reflections of the classical period in today's Europe

The Middle Ages

- Impacts of religion on human life; the unequal social status of people
- Sweden's annexation of Finland

The dawn of the modern era

- Changes in the European's values and conception of the world at the end of the Middle Ages: the Renaissance in art, the Reformation in religion, and science's expansion of the conception of the world.

Finland as part of the Kingdom of Sweden

- Life as a king's subjects, and as inhabitants of a great-power state
- Finnish culture takes shape

Liberty gains a foothold

- Impacts of the French Revolution

In addition, one of the following themes, whose development is examined from prehistory up until the 19th century:

- An advanced culture outside Europe
- Evolution of trade
- Evolution of culture
- Development of means of mobility and transport
- Demographic changes

ASSESSMENT CRITERIA

Acquiring information about the past

The pupils will

- Know how to distinguish fact from opinion
- Know how to distinguish a source from an interpretation of that source.

Understanding historical phenomena

The pupils will

- Know that the past can be divided into different eras (chronology); they will be able to name features characteristic of societies and eras
- Recognize the continuity of phenomena from one era to another and understand that change is not the same as progress, and does not mean the same thing from the perspectives of different people and groups, either
- Know how to place themselves in the position of a person from the past: they will know how to explain why people of different eras thought and acted in different ways, and will know the importance of the cause-and-effect relationship

Applying historical knowledge

The pupils will

- Know how to present an account of the matter under consideration so as to explain the event or phenomenon from the standpoint of some of the parties involved
- Know that some things can be interpreted different ways; they will be able to explain why that happens to be so

Music • Grades 5–9

In music instruction in the fifth through ninth grades, the musical world and musical experiences are analyzed and pupils learn to use musical concepts and notation in conjunction with listening to and playing music.

OBJECTIVES

The pupils will

- Maintain and improve their abilities in different areas of musical expression, acting as members of a music-making group
- Learn to examine and evaluate various sound environments critically, and to broaden and deepen their knowledge of different genres and styles of music
- Learn to understand the tasks of music's elements—rhythm, melody, harmony, dynamics, tonal color, and form—in the formulation of music; and to use the concepts and notations that express these elements
- Build their creative relationship with music and its expressive possibilities, by means of composing.

CORE CONTENT

- Exercises that develop voice control and vocal expression; single- and multiple-voiced repertoire representing different styles and genres, with part of the repertoire learned by heart
- Exercises that develop skills for playing instruments together; instrumental repertoire representing different musical cultures and styles in a varied way
- Diverse listening selections and their analysis in terms of time, locale, and culture
- Experimenting with one's own musical ideas by improvising, composing, and arranging, using sound, song, instruments, movement, and musical technology

ASSESSMENT CRITERIA

The pupils will

- Participate in group singing and know how to sing, follow a melody line and the correct rhythm
- Master, as individuals, the basic technique of some rhythm, melody, or harmony instrument so as to be able to play in an ensemble
- Know how to listen to music and make observations about it, and present justified opinions about what they have heard

- Know how to listen to both their own music and music produced by others, so as to be able to make music together with others
- Recognize, and know how to distinguish between, different genres of music and music of different eras and cultures
- Know the most important Finnish music and musical life
- Know how to use musical concepts in conjunction with making and listening to music
- Know how to use the elements of music as building materials in the development and realization of their own musical ideas and thoughts

Physics • Grades 7–9

The purpose of physics instruction in the seventh through ninth grades is to broaden the pupils' knowledge of physics and their conception of the nature of physics, and to strengthen skills in the experimental acquisition of information.

The starting points for physics instruction are the pupils' prior knowledge, skills, and experiences, and their observations and investigations of objects, substances, and phenomena in nature. From these, the instruction progresses towards the laws and fundamental principles of physics. The purpose of the experimental orientation is to help the pupils both to perceive the nature of science and to learn new scientific concepts, principles, and models; to develop skills in experimental work and cooperation; and to stimulate the pupils to study physics.

OBJECTIVES

The pupils will

- Learn to work and investigate natural phenomena safely, together with others
- Learn scientific skills, such as the formulation of questions and the perception of problems
- Learn to make, compare, and classify observations, measurements, and conclusions; to present and test a hypothesis; and to process, present, and interpret results, at the same time putting information and communication technology to good use
- Learn to plan and carry out a scientific investigation in which variables affecting natural phenomena are held constant and varied and correlations among the variables are found out
- Learn to formulate simple models, to use them in explaining phenomena, to make generalizations, and to evaluate the reliability of the research process and results
- Learn to use appropriate concepts, quantities, and units in describing physical phenomena and technological questions
- Learn to evaluate the reliability of the information they have obtained from different sources

- Learn to use various graphs and algebraic models in explaining natural phenomena, making predictions, and solving problems
- Learn about natural phenomena and processes and the transformations of energy that take place in them, know about various natural structures and the interactions of their components, and understand causal relationships between phenomena.

CORE CONTENT

Motion and force

- Interactions and the corresponding forces; motion and equilibrium phenomena that arise from those interactions; occurrence of those phenomena in nature
- Motion and models of uniform and uniformly accelerating motion
- Work done by a force; mechanical energy and power

Vibrations and wave motion

- Various basic phenomena of vibrations and wave motion; production, detection, observation, reflection, and refraction of wave motion; related properties, quantities, and laws
- Importance and applications of sound and light
- Functioning principles of optical instruments

Heat

- Phenomena associated with the heating and cooling of objects and substances; description of those phenomena with appropriate concepts and laws; importance and applications of thermal phenomena
- Conservation and degradation of energy; heat as a form of energy

Electricity

- Electric and magnetic forces between objects
- Direct-current circuits; basic phenomena of electric circuits; safe application of those phenomena in everyday life and technology
- Electromagnetic induction and its use in energy transmission; use of electricity at home

Nature structures

- Natural structures and proportions
- Interactions that keep structural components together; binding and release of energy in processes occurring between components
- Radioactive decay; fission and fusion; ionizing radiation and its effects on animate nature; protection from radiation

Chemistry • Grades 7–9

The purpose of chemistry instruction in the seventh through ninth grades are to expand the pupil's knowledge of chemistry and the nature of chemical information and guide the pupil in thinking characteristic of the (natural)

sciences, in acquiring knowledge, and in applying that knowledge in different life situations.

The instruction relies on an experimental approach in which the starting point is the observation and investigation of substances and phenomena associated with the living environment. The pupil progresses from that point to the interpretation, explanation, and description of phenomena, and to modeling both the structure of matter and chemical reactions with the symbolic language of chemistry. The experimental orientation must help the pupil to grasp the nature of science and to adopt new scientific concepts, principles, and models; it must develop manual skills and abilities for experimental work and cooperation and stimulate the pupil to study chemistry.

OBJECTIVES

The pupil will

- Learn to work safely, following instructions
- Learn to use research methods typical from the standpoint of acquiring scientific knowledge, including information and communication technology; and to evaluate the reliability and importance of the knowledge
- Learn to carry out scientific investigation and to interpret and present the results
- Learn about processes associated with the cycle of substances and the life-cycles of products, and the importance of those processes to nature and the environment
- Learn to know about the physical and chemical concepts that describe the properties of substances and learn to apply those concepts
- Learn to describe and model chemical reactions with the aid of reaction equations
- Learn to apply their knowledge to practical situations and choices
- Learn to know about the importance of chemical phenomena and applications to the individual and society.

CORE CONTENT

Air and Water

- Atmospheric substances and their importance to the individual and the equilibrium of nature
- Water and its properties, such as acidity and alkalinity
- Flammability of substances; the combustion reaction; its description with the symbolic language of chemistry; the properties of combustion products and effects on the environment

Raw material and products

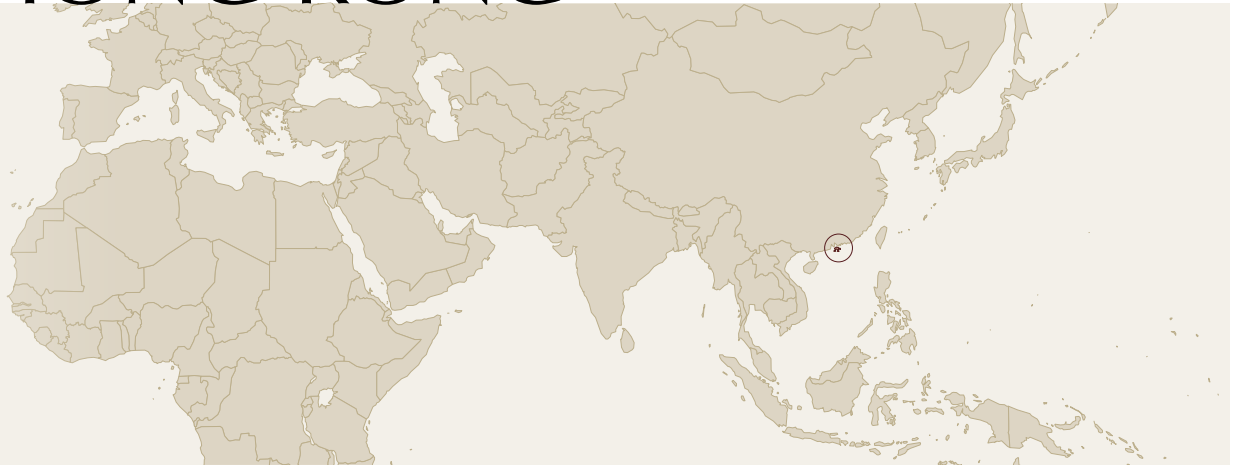
- Key elements and compounds to be found in the earth's crust and their properties, and the manufacture, use, sufficiency, and recyclability of products
- Electrochemical phenomena, the electrochemical cell, and electrolysis, and their applications

- Symbolic designation, classification and distinction of elements and compounds; comparison of reaction rates
- Interpretation of reaction equations and the balancing of simple reaction equations
- Explanation of the properties and structures of elements and compounds with the aid of an atomic model or the periodic table

Living nature and society

- Photosynthesis and combustion; energy sources
- Oxidation reactions and reaction products of organic compounds such as alcohols and carboxylic acids, and the properties and uses of these products
- Hydrocarbons, the petroleum-refining industry, and its products
- Carbohydrates, proteins, and lipids; their composition and importance as nutritional substances and industrial raw materials
- Washing and cosmetic materials; textiles

HONG KONG



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
4	2	3	1	3	10	1	3	6*

Population size:	6,977,700
Student enrollment:	1,018,100
U.S. states with similar statistics:	Arizona, Indiana, and Washington

General description of K–12 education:

Beginning at approximately age six, Hong Kong requires six years of primary school education and three years of junior secondary education. The school year is 190 days long. Hong Kong has a national curriculum it calls the National Curriculum Framework. Hong Kong administers the Territory-wide System Assessment (TSA) at the end of the third primary year, sixth primary year, and third secondary year to evaluate student competency in Chinese language, English language, and math. The TSA is designed to help schools modify school standards to better meet student needs. In addition, secondary school students complete the Hong Kong Certificate of Education Examination and may complete the Hong Kong Advanced Level Examination to attend tertiary-level education.

Required subjects:

Chinese language, English language, math, personal/social/humanities (including Chinese history, economics, geography, ethics/religious studies, government, social studies, and civics), science, technology, arts, and physical education.

EXCERPTS

The documents included for Hong Kong are excerpts from the national curriculum framework, obtained from the Education Bureau of the Government of Hong Kong SAR:

- Science—grades 4–6
- Visual Arts—grades 4–6

* Test taken in 2002

HONG KONG

Excerpts

NATIONAL CURRICULUM FRAMEWORK

Science • Grades 4-6

Science and Technology in Everyday Life

This strand aims at arousing students' curiosity and interest in science and technology through hands-on and minds-on activities. Students are expected to have an increased awareness of the natural and human world, keen interest in observing their surroundings and to acquire a basic understanding of some simple natural phenomena. Under the guidance of teachers, students are expected to relate their experience of science and technology to everyday contexts. They are also expected to develop sensitivity to safety issues related to science and technology in everyday life, as well as treating the environment with care.

CORE ELEMENTS

- Planning and conducting simple investigations
- Investigating some simple patterns and phenomena related to light, sound, electricity, movement and energy
- Use of some materials and their related consequences on human and environment
- Efficient transfer of energy and the interaction between energy and materials
- The patterns of changes / phenomena observable on Earth caused by movement of the Earth and the Moon around the Sun
- The wonder of the Universe
- Contributions of space exploration to everyday life
- Functional and aesthetic requirements in various processes in technology learning activities
- The design cycle and its application in making models
- The application and effects of technological and scientific advances in daily life
- Technological advances leading to the detailed observation of distant big objects and very small objects
- The trends in scientific and technological advances
- Safety and personal responsibility in using science and technology
- Awareness that the usage of technology might be different in other cultures

SUGGESTIONS FOR EXTENSION

- Schools may choose to provide more life-wide learning opportunities for students, e.g. they might take part in science competitions, visit resource-based learning

centers such as laboratories in secondary schools or institutes.

- Further exploration on "famous scientists and inventors and their contributions" can also be introduced in addition to information from textbooks on the subject, e.g. students may select examples of scientists/inventors and study about their discoveries/inventions and their impact on our daily life.
- Schools may also consider extending the depth of study on all or part of the core elements. Schools can get students to undertake the sort of scientific investigation that requires them to make hypotheses, design and carry out experiments, collect and analyze data, make judgments and report results and conclusions.
- Schools can also choose to allow students to study and use the design cycle when engaged in technology learning activities, e.g. rather than asking students to build a tower up to a specific height, teachers can allow students to choose different materials for building the same structure (e.g. tower) or to build different structures with the same material (e.g. straw).

Visual Arts Education • Grades 4-6

The visual arts curriculum has four learning targets:

- Developing creativity and imagination: Through active participation in art appreciation, criticism, and making, students will develop new and different ways to enhance their power of imagination, creative thinking, and presentation skills.
- Developing skills and processes: Students will learn to use visual language, different visual arts forms, and a variety of materials and techniques for visual arts making.
- Cultivating critical responses: As students learn to understand works of visual arts, they acquire the abilities to give critical, informed, and intelligent responses based on well-explored background of information about the artwork, the artist, and just as importantly, with reference to their own experience, training, culture, and personal judgment.
- Understanding arts in context: Students will learn to understand the meaning and value of works of visual arts in their own and other contexts including the art historical, personal, social, cultural, ideological, and political.

DEVELOPING CREATIVITY AND IMAGINATION

<i>Learning Objectives</i>	<i>Examples of Learning Activities</i>
1. Seek, select, and organize information for the purpose of art creation	<ul style="list-style-type: none"> Collecting images from magazines and making selections to create a surrealist poster Collecting some special packaging designs and analyzing the artistic features and functions to explore ideas for a design project
2. Use direct observation and various experiences to explore ideas	<ul style="list-style-type: none"> Observing different facial expressions of oneself in a mirror to explore ideas for a self-portrait painting Recording human movements in sketches and using various materials to construct forms of movement according to sketches
3. Explore art elements and design principles to express ideas and feelings	<ul style="list-style-type: none"> Bringing out the center of interest of an artwork by using the principle of contrast Observing several sculptures, paying special attention to the use of positive and negative spaces so as to stimulate ideas for creating a new sculpture on a theme such as “merging” or “contrast”
4. Explore alternatives by re-composing and by trying different combinations	<ul style="list-style-type: none"> Using images from magazines and reconstructing them in an order to form a storyline. Combining different geometrical figures to show human movements and comparing the visual results between different combinations
5. Use sketching to explore a range of possibilities for finishing a piece of work	<ul style="list-style-type: none"> Using sketches to explore and develop ideas for creating a toy robot Drawing sketches of puppets of fairy tale characters, considering the choice of materials and the linkages of joints of the puppets
6. Interact with others to develop artistic ideas	<ul style="list-style-type: none"> Visiting an artist’s studio or an exhibition to inspire with ideas to create a new piece of artwork Discussing with classmates to stimulate ideas for creating a piece of artwork on a theme such as “Space Emigration” or “The Future Houses”

DEVELOPING SKILLS AND PROCESSES

<i>Learning Objectives</i>	<i>Examples of Learning Activities</i>
1. Create artworks which reflect skills in applying art knowledge, techniques, and processes to express ideas and feelings	<ul style="list-style-type: none"> Using bright colors to express the visual impact of joy in painting about the celebration of an event Using color effects to paint a scene to express the feeling of harmony
2. Convey ideas in selected medium	<ul style="list-style-type: none"> Using clay to create forms to illustrate facial expression Adapting ideas from some interesting themes in current affairs or daily life expressing them in a four-framed comic
3. Explore and use a variety of art media, tools, and techniques	<ul style="list-style-type: none"> Exploring and using different materials and techniques to make a lantern Exploring the techniques and tools making a wire sculpture to form human figures in motion
4. Understand and compare knowledge and skills of visual arts in relation to other disciplines	<ul style="list-style-type: none"> Linking up the concept of mathematical patterning with the use of gradation by M.C. Escher in his printmaking to create a patterning piece Expressing the imagery in a poem by painting, and comparing the media of expression between poetry and painting

CULTIVATING CRITICAL RESPONSES

<i>Learning Objectives</i>	<i>Examples of Learning Activities</i>
1. Use art terminology to describe and analyze artworks	<ul style="list-style-type: none"> Describing and analyzing the use of color, structure, and contents of the Chinese New Year Print illustrating the New Year woodblock print Describing the form and analyzing the relationship between the subject matter and the use of material of the work “Crab#4” by local sculptor ZHANG Yi
2. Interpret visual forms based on techniques, meaning, and art elements and principles of design	<ul style="list-style-type: none"> Studying the sculptures by Henry Moore to understand the concepts of “negative shapes” and “positive shapes” Appreciating the painting of “Shrimp” by QI Baishi and understanding how the artist uses Chinese painting techniques to create the shapes of objects with ink
3. Express and give reasons for their opinions/preferences	<ul style="list-style-type: none"> Expressing personal opinions, with reasons, on the composition of a popular comic and the form of its characters Expressing opinions on “Guernica” by Picasso after understanding the background of the work
4. Apply criteria to assess artworks	<ul style="list-style-type: none"> Assessing a poster design based on its effectiveness in terms of communication and artistic qualities Evaluating an artwork according to the appropriateness of the selection of material for the expression of a particular theme

UNDERSTANDING ART IN CONTEXT

<i>Learning Objectives</i>	<i>Examples of Learning Activities</i>
1. Recognize art heritage and its role in society	<ul style="list-style-type: none"> Understanding the scenery and people illustrated in the paintings or sketches by Hong Kong artists Understanding Chinese/Western culture as reflected in temples/churches in Hong Kong
2. Recognize artworks with distinctive uses of local materials and local environmental features	<ul style="list-style-type: none"> Exploring the relationship between local sculptures and public spaces Analyzing and discussing the relationship between folk-tales of traditional Southern and Northern “lion-head” designs and folkloric customs
3. Recognize the fact that artworks serve different purposes in different cultural contexts, past and present	<ul style="list-style-type: none"> Recognizing the functions of Christmas cards in relation to Western culture Recognizing the relationship between the forms of Chinese pottery and their functions

SOUTH KOREA



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
3	10	1	3	4	2	3	1	6

Population size:	48,456,369
Student enrollment:	5,897,719
U.S. states with similar statistics:	California

General description of K–12 education:

Compulsory education begins for all students at age six and ends at age 15. The school year is 220 days long. South Korea's national curriculum is called the National Basic Curriculum. Students take upper secondary entrance exams to continue schooling for an additional three years. High schools are classified into various types e.g., general academic; vocational; technical; agricultural; commercial; fishing and oceanography; and specialist high schools (specializing in, for example, foreign languages, arts/art and music, science, sport). In addition to entrance exams, a sampling of students at grades 6, 9, and 10 participate in the National Assessment of Educational Achievement, which tests Korean, social studies, math, science, and English.

Required subjects:

Korean language, moral education, social studies (including Korean history, world history, and geography), mathematics, science, practical arts (technology, home economics), physical education, music, fine arts, and foreign language (English).

EXCERPTS

The documents included for South Korea are excerpts from the national curriculum. The time allocation chart was obtained from the Ministry of Education, Science, and Technology:

- Time allocation chart
- Middle School General Social Studies Curriculum—grades 7–9

SOUTH KOREA

Excerpts

NATIONAL BASIC CURRICULUM

Time Assignment for Each Subject years 3 – 10

SUBJECT	SCHOOL YEAR							
	3	4	5	6	Middle School			
					7	8	9	10
Korean language arts	238	204	204	204	170	136	136	136
Ethics	34	34	34	34	68	68	34	34
Social Studies	102	102	102	102	102	102	136	170 (Korean History 68)
Mathematics	136	136	136	136	136	136	102	136
Science	102	120	102	102	102	136	136	102
Practical course	-	-	68	68	Technical education/Home economics			
					68	102	102	102
Physical Education	102	102	102	102	102	102	68	68
Music	68	68	68	68	68	34	34	34
Arts	68	68	68	68	34	34	68	34
Foreign Language (English)	34	34	68	68	102	102	136	136
Independent Activity	68	68	68	68	136	136	136	204
Special Activity	34	68	68	68	68	68	68	68
Annual Class Time	986	986	1,088	1,088	1,156	1,156	1,156	1,156

Number of class hours proposed above shows the minimum number of hours of 34 school weeks as the National Basic Education Period.

General Social Studies • Grades 7–9

The National Curriculum assigns social studies education at 102 hours per year for 7th and 8th grades and 136 hours per year for 9th grade. The social studies curriculum is divided into four areas: Korean History, World History, Geography, and General Social Studies.

1. Social life and the individual

- The human being as a social person; the process of socialization
- The formation of self-identity; importance of self-respect
- Types of social interaction in everyday life and their socio-cultural significance

- The concept and types of social relationship nets; the interactive roles of individuals and groups
- Measures to solve social inequality

2. The concept and creation of cultures

- The significance and characteristics of cultures
- Diverse cultural perspectives; sound and objective comprehension of other cultures
- Characteristics of popular culture; critical analysis of popular culture as depicted in the mass media
- The human being as a creator of culture
- Preservation and development of culture

3. Political life and democracy

- Diverse principles and characteristics of politics
- Sources and subject bodies of political power in history
- Characteristics of democracy as a political principle
- The concept of democracy in view of social development and historical evolution
- Critical analysis of modern political phenomena

4. Political process and participatory democracy

- Structure and function of power in a democratic state
- Various methods of political participation
- Subjects and functions of political processes; encouraging active public participation
- Challenges and implications for political development in relation with civic societies and political cultures
- Critical analysis of current political issues

5. Economic life and issues

- The concepts of production, distribution and consumption
- The concept and examples of scarcity encountered in everyday economic life
- Efficient, fair and long-spanned economic decision-making
- Economic dependence and interaction between individuals, regions and nation states
- Economic structures and the market system
- Roles and responsibilities of the consumer, producer and government
- Credit and property management as a requisite for sustainable economic life

6. The market economy

- Principles of the market price and causes of price fluctuation
- Limitations of the market function; suggestions for improvement
- The concept of demand and supply; factors that affect demand and supply
- Equilibrium price theories
- Diverse price functions to induce efficient resource distribution
- Cases of market failure and government failure; supplementary measures
- Institutional principles of the market economy: the private property right, freedom of economic activity, pursuit of private profit

7. National economy

- The concept of national income in view of economic circulation and change
- The significance and limitations of economic development
- Monetary systems and financial policies
- The concept of commodity prices; measures to stabilize prices
- The concept of unemployment; measures to reduce the unemployment rate
- Basic features of the world economy; international transaction and exchange rates

8. Human life and law

- The human everyday life as interlinked with laws and regulations

- The function of laws in preventing disputes and maintaining a comfortable public life
- Judicial system and principles; the process of settling disputes and discord
- Legal consciousness in everyday life
- Critical analysis of legal issues; search for adequate solutions

9. Human rights protection and the Constitution

- The development of human rights consciousness; relation with the Constitution
- Basic principles of the Constitution; various devices for constitutional protection
- The type and features of the Korean government as envisioned in the Constitution
- Public consciousness as a basis for the protection of one's own human rights and respect for others' rights

10. Social changes and our future society

- The concept and factors of social change
- Social problems that occur in the course of changes; identification of causes and solution measures
- Forecasts of human life in future society; critical analysis of potential problems
- Search for adequate strategies and measures in preparation of future society

High Achieving Countries Don't Narrow

MARTIN WEST

FOR AMERICAN EDUCATORS AND POLICYMAKERS, international tests of math and science achievement tell a discouraging tale. Consider the results of the latest round of Programme for International Student Assessment (PISA) testing, conducted in 2006.¹ American 15-year-olds ranked 21st in science and 25th in math among the 30 industrialized nations that comprise the Organisation for Economic Cooperation and Development (OECD).² Our students lagged behind their peers in top-scoring Finland by roughly two full grade levels in both subjects. Not only our rankings, but also our average scores in both subjects, were closer to those of Mexico (the lowest performing OECD member) than those of the Finns.

Of course, this is hardly news. International assessments of student achievement have been conducted for several decades now, and the story has been much the same. To be sure, there are occasional bright-spots—glimmers of hope that suggest the potential for reform to bring about broad improvement. Massachusetts and Minnesota, stand-out states on our own National Assessment of Educational Progress, participated separately on the 2007 Trends in International Math and Science Study (TIMSS) and more than held their own, ranking among the highest performing countries.³ Yet the overall picture that emerged from TIMSS was no different than that from PISA. Though American students performed slightly above the international average, reflecting the broader set of countries participating in that assessment, they still trailed students from our chief economic competitors by considerable margins in both subjects.

Some commentators have urged caution in interpreting this evidence, usually on the grounds that the U.S. is unique in its commitment to educating all of its students. This objection, once worthy of consideration, is no longer tenable. While the world's leader in educational attainment for most of the Twentieth Century, the U.S. now ranks in the middle of the pack in terms of the share of students graduating from high school and college. And the very same PISA assessments show that the influence of socioeconomic background on student achievement

Our students lagged behind their peers in top-scoring Finland by roughly two full grade levels in both [math and science].

is actually stronger in the U.S. than in the typical OECD country.⁴

Other skeptics take the results at face value but assert that they do not much matter, at least for the economic outcomes to which they are so often linked in public debate. Researcher Gerald Bracey, for example, has suggested that we lack “data on the relationship between the economy’s health and the performance of schools. Our long economic boom suggests there isn’t one—or that our schools are better than the critics claim.” If we’re so dumb, in other words, then why are we so rich?

Bracey’s critique may not sound so compelling in the present economic climate. Still, it is worth noting the growing evidence that the knowledge and skills measured by these tests do indeed influence national economic success. The latest and most convincing analysis comes from economists Eric Hansuhek and Ludger Woessmann, who combined data from 36 international tests administered between 1964 and 2003 to develop a comparable measure of educational achievement for 50 countries.⁵ This measure turns out to be a powerful predictor of national economic growth between 1960 and 2000, even taking into account initial levels of economic development and the number of years of schooling students receive.⁶ With the world growing “flatter” by the day, the urgency of ensuring that our students are prepared to compete in the global economy is clear.

We *are* behind—and it matters. The question, as Lenin once put it, is what is to be done?

TAKING CONTENT SERIOUSLY

The premise of this report is that valuable guidance may be found in the documents that shape the content of

education offered to students in high-performing countries. In particular, we are provided with excerpts from curriculum standards and assessments from an otherwise diverse group of nine countries that have all consistently outperformed the U.S. on the PISA exams, which have been administered on three occasions since 2000.

The performance gap between American students and their peers in these countries is substantial. PISA scores are scaled such that the mean score for OECD countries is 500, with a standard deviation across the same set of countries of 100. In 2006, American students received an average score of 489 in science and 474 in math, lagging the OECD average in both subjects. The average across the nine countries included in this report, by contrast, was just above 530 in both subjects — more than one grade level higher than the U.S. in science and almost two full grade levels higher in math.

This report is but one of many that have attempted to look abroad to inform debates over education policy. Indeed, a large body of systematic research now links the relative standing of national school systems to alternative policies and practices.⁷ What is novel, however, is the report's focus on questions of content. Guiding its selection of materials is the theory that a rigorous curriculum rich in a wide range of subject content matters greatly for students' academic success, over and above the policies and systems of governance that shape how that content is delivered. It therefore contains materials that shed light on the way in which the world's leaders in math and science treat components of a traditional liberal arts and sciences curriculum, such as literature, history, physics, music, and the visual arts.

CONTENT AND NO CHILD LEFT BEHIND

These materials hold great relevance for ongoing debates over the direction of American education policy in the era of No Child Left Behind (NCLB). This massive federal law represents the culmination of a decades-long bipartisan push to hold schools accountable for student achievement in core academic subjects — a push that was itself heavily influenced by concerns about the performance of American students relative to their peers abroad.⁸ And there is considerable evidence that test-based accountability can be effective in raising student achievement in tested subjects. In particular, states that adopted accountability systems in the 1990s improved their math and reading performance on the National Assessment on Educational Progress against states that did not adopt accountability systems.⁹

Yet this approach to education reform carries with it important risks. Some observers fear that, even if accountability systems can be expected to improve skills in tested subjects, these gains will come at the expense of performance in subjects that go untested — and will

therefore go untaught. In addition, even in tested subjects there is the danger that schools may respond to accountability pressures by adopting a narrow emphasis on skills rather than content that may ultimately undermine student performance across the board. Such a content-light approach may be reinforced by the use of tests that are not aligned to high-quality curriculum standards.

Enacted in 2002, NCLB now requires states to test students annually in grades 3–8 (and once in high school) in reading and math. States must also test students in science, but these tests need only be administered in three grades and do not have to be used to determine whether schools are making “adequately yearly progress.” Other core academic subjects, including history, are altogether excluded from the law's testing mandates.

The extent to which curricular narrowing has already occurred remains difficult to gauge, as does the extent to which any such narrowing is attributable to specific policies like NCLB. To be sure, there is widespread anecdotal evidence of under-performing schools cutting back on

The performance gap between American students and their peers in these countries is substantial.

instruction in untested subjects in an effort to boost proficiency in reading and math.¹⁰ In addition, 44 percent of district officials surveyed by the Center on Education Policy during the 2006–07 school year reported that their schools had increased instructional time in reading and math since 2002 while cutting back on the time spent on other subjects, often by substantial margins.¹¹ Yet there is good reason to be skeptical of the responses of district officials, who are generally far removed from the practices at specific schools and may be inclined to exaggerate the extent to which NCLB has distorted their educational programs.

In my view, the most useful evidence on this issue comes from the Schools and Staffing Survey, which has been conducted by the U.S. Department of Education at regular intervals since the 1989–90 school year. This survey asks classroom teachers about the amount of time devoted to instruction in various subjects in a context not explicitly linked to the issue of curricular narrowing. My recent analysis of the data collected in 2003–04 school year confirmed that the initial implementation of NCLB was in fact associated with modest declines of 23 and 17 minutes per week in the amount of time elementary school teachers spend on science and history, respectively. Looking over a longer time period that encompasses the years in which many states adopted accountability systems prior to NCLB, the changes in elementary school

Table 1: Instructional Time as a Percentage of Time Spent on Instruction in Core Academic Subjects, Grades 1-6, 1994–2004

	1993–94	1999–2000	2003–04	Change, 1994–2004	Percent Change, 1994–2004
Reading/English Language Arts	47.8	48.3	51.9	+4.1	+8.6
Mathematics	23.6	25.7	24.7	+1.1	+4.7
Science	14.1	12.5	11.3	-2.8	-19.9
History/Social Studies	14.4	13.6	12.1	-2.3	-16.0
Total	100.0	100.0	100.0	-	-
Sample size	8,376	7,244	7,397	-	-

Note: Columns may not sum to 100 due to rounding. The sample includes all full-time teachers of self-contained classrooms in grades 1–6. Source: Schools and Staffing Survey, U.S. Department of Education, various years; table adapted from Martin West, “Testing, Learning, and Teaching: The Effects of Test-Based Accountability on Student Achievement and Instructional Time in Core Academic Subjects,” in Chester E. Finn, Jr. and Diane Ravitch, eds., *Beyond the Basics: Achieving a Liberal Arts Education for All Children* (Thomas B. Fordham Institute, 2007).

curricula become more pronounced: a 20 percent decline in share of time spent on science and a 16 percent decline in the share spent on history (see Table 1).

These patterns indicate that the changes in time allocation in American elementary schools through the 2003–04 academic year were less pronounced than the heated rhetoric surrounding the issue of curricular narrowing would suggest. Nonetheless, they do suggest that the emphasis placed on reading and math by NCLB and its state level predecessors has reduced students’ exposure to other subjects in the elementary grades. And it is possible, perhaps even likely, that these changes have accelerated in the four years since the last survey was conducted.¹²

Have these changes been detrimental? If so, are they nonetheless necessary if we are to improve student achievement in the building-block subjects of reading and math? What can we learn about these questions from the materials from other nations presented in this report?

LIMITATIONS AND LESSONS

At the outset, it is essential to note several limitations on the evidence presented. Inevitably, the excerpts are drawn from disparate sources in each country and seem to play somewhat different roles in their national education systems, making comparisons among them and to the U.S. difficult. In some cases, the materials are from national curricula that presumably play a role analogous to state content standards in the U.S. In others, we have snippets of exams administered either to all graduating students or to those intending to pursue a post-secondary degree. In the case of Australia, the national assessment of civics and citizenship excerpted here is administered

... the amount of time actually devoted to reading instruction in U.S. elementary schools is more than four times that devoted to science and social studies.

to a representative sample of students every third year in a manner similar to the NAEP. In no country are we able to assess whether these materials are actually used in the classroom.

Equally important to keep in mind is the fact that the excerpts come only from high-performing countries. In the language of social science, the sample of countries has been selected based upon the dependent variable — or the outcome that we would like to explain. This leaves open the possibility that, were we to look at another sample of countries performing at the same level as the U.S., we would find curricula that are equally rich yet somehow not transmitted to students as effectively. To the extent that we see high-performing countries providing students with a comprehensive liberal arts education, we learn that a more narrowly focused approach is not necessary for success in math and science. But this evidence, on its own, cannot demonstrate that a comprehensive curriculum plays a role in their successes.

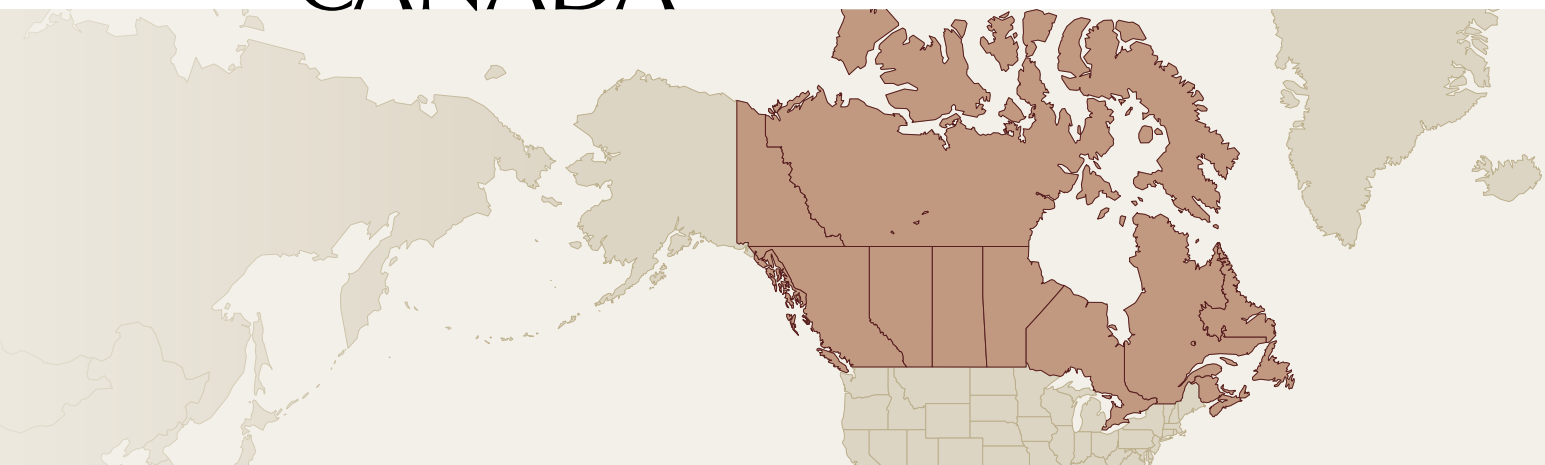
Nonetheless, the excerpts are provocative. Particularly striking are the time allocations charts from Korea, which specify the minimum number of hours to be devoted annually to each subject for students in grades 3–10. In the elementary grades, Korean students are to be provided with at least two hours of instruction each week in both

music and art. Looking only at the core academic subjects of Korean language arts, math, science and social studies, we see that the time minimum specified for language arts exceeds that for science and social studies by only a factor of two. As Table 1 above shows, the amount of time actually devoted to reading instruction in U.S. elementary schools is more than four times that devoted to science and social studies.

The materials from several other countries likewise suggest that, at least as a matter of policy, they place considerable emphasis on subjects beyond those assessed by PISA. We see that the high-flying Finns have a national curriculum that specifies clear content standards not only in physics and chemistry, but also in history and in music, with students expected to develop vocal skills and become familiar with the nation's musical heritage. Exit exams administered to students completing high school in British Columbia probe students' knowledge of history and literature in remarkable depth. The Swiss Matura exam includes questions about the timing of the American Revolution and asks them to interpret and analyze a primary document from the Cuban Missile Crisis with minimal guidance as to its context. Though strong conclusions would be unjustified, these and other high-performing countries seem to prioritize providing their students with a comprehensive curriculum encompassing the full range of the traditional liberal arts.

If that is the case, then these documents demonstrate that a narrow focus is not essential to performing well in science and math. They cannot definitively show why the student achievement in the United States falls short that of our international competitors in math and science. They do, however, confirm that an exclusive focus on those subjects is not essential in order to get ahead.

CANADA



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
7	3	4	7	11	3	7	6	2

Population size:	32,976,026
Student enrollment:	5,212,533 in the 2005 – 06 school year
U.S. states with similar statistics:	Texas

General description of K–12 education:

Depending on the province, compulsory education begins at age six or seven and lasts 10 years. The school year is between 180 and 200 days long. Canada has no national standards or curriculum. Most students go on to senior high school for grades 10–12, but this is not mandatory. In senior high school, students can either focus on specialist programs that prepare them for the workforce or take courses that prepare them to meet university entrance requirements. Many provinces have exams at certain grade levels, that usually assess students in English (or French) and mathematics. Some also assess social studies and science. In addition, some provinces require graduation diploma examinations in certain subjects. In 2007, Canada implemented the Pan-Canadian Assessment Program, which assesses all 13-year olds in reading, mathematics, and science every three years.

Required subjects:

These vary by province but for the most part include: language arts, mathematics, social studies (history, geography, personal, social, health, and civics), general science and technology, the arts, and physical education.

EXCERPTS

The first two documents included for Canada are excerpts from British Columbia high school exit exams, obtained from the British Columbia Ministry of Education:

- History—grade 12
- English literature—grade 12

The next document included for Canada is an excerpt from Ontario's curriculum, obtained from the Ontario Ministry of Education:

- Music—grade 8

CANADA

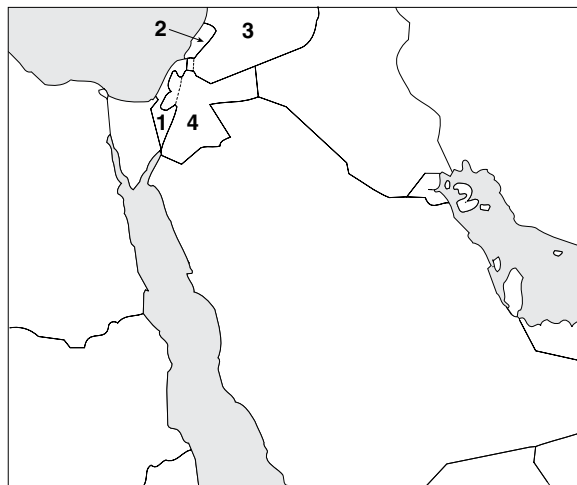
Excerpts

BRITISH COLUMBIA HIGH SCHOOL EXIT EXAM

1. What was the dominant ethnic group in the Sudetenland region of Czechoslovakia following the First World War?

A. Polish
B. Czech
C. Slovak
D. German

Use the following map to answer question 2.



2. Which states did Britain control as mandates?

A. 1 and 2
B. 1 and 4
C. 2 and 3
D. 3 and 4

3. Which leader was most concerned about German re-armament?

A. Wilson
B. Orlando
C. Clemenceau
D. Lloyd George

4. Why was Italy dissatisfied with the outcomes of the Paris Peace Conference?

- A. Italian land claims were not met.
- B. Italy was forbidden to unite with Austria.
- C. Italian colonies were put under British control.
- D. Italy was forced to pay reparations to Yugoslavia.

5. Which of the following countries refused to ratify the Treaty of Versailles?

- A. Italy
- B. USA
- C. Japan
- D. USSR

Use the following slogan to answer question 6.

“Working Men Of All Countries, Unite!”

6. With which political ideology is this slogan associated?

- A. nazism
 - B. fascism
 - C. democracy
 - D. communism
-

7. How did the November Revolution change Russia?

- A. It ended the Tsar’s rule.
- B. It brought an end to the Civil War.
- C. It brought Lenin and the Bolsheviks to power.
- D. It established democracy under a Provisional Government.

8. Which of the following is an accurate statement about the Russian Civil War?

- A. The White Army was a unified force.
- B. The Treaty of Brest-Litovsk ended the war.
- C. The Red Army had superior morale and determination.
- D. The foreign interventionists controlled the industrial heartland.

Use the following statement to answer question 9.

The bill was passed because of women's work in the First World War. It was an acknowledgement of patriotism.

9. What did this American bill recognize?
- A. that women could join trade unions
 - B. that women deserved higher wages
 - C. that women could serve in the army
 - D. that women deserved the right to vote

Use the following statement to answer question 10.

Some alarming facts in regard to our foreign population:

- Many immigrants neglect to become naturalized American citizens. They retain their real alliance to the lands from which they come.
- Radical labour agitators are suspected of "taking their orders from Moscow."
- Over 10 percent of the people here cannot speak English.

US Government Official (1920)

10. What policy was a result of these attitudes?
- A. prohibition
 - B. segregation
 - C. isolationism
 - D. the New Deal

Use the following newspaper headline to answer question 11.



11. Where did this take place?
- A. Italy
 - B. Spain
 - C. Russia
 - D. Germany

12. What was Hitler's term for the right of Germans to occupy lands to the east of Germany?

- A. diktat
- B. autarky
- C. Anschluss
- D. lebensraum

13. Why was the Salt March important to the Indian Independence Movement?

- A. It demonstrated economic self-sufficiency.
- B. It inspired the partition of India and Pakistan.
- C. It brought Jinnah to the forefront of the movement.
- D. It led to India's participation in the Second World War.

Use the following quotation to answer question 14.

As we devote ourselves to the care of our own blood—that blood which has been entrusted to us by destiny—we are at the same time doing our best to help to safeguard other peoples from diseases which spring from race to race, from people to people.

Adolf Hitler, Speech at Nuremberg (1933)

14. Which of the following describes this quotation?

- A. an original source too biased to be reliable
- B. a prejudiced source unable to be interpreted
- C. a valuable secondary source about propaganda
- D. a useful primary source for the study of Nazism

15. How did the Soviet totalitarian system under Stalin differ from that of Hitler and Mussolini?

- A. It built up armed forces.
- B. It took away human rights.
- C. It made trade unions illegal.
- D. It abolished private land ownership.

16. Which is an example of a cause-and-effect relationship?

- A. the Spanish Civil War → intervention of British troops
- B. the Manchurian Crisis → the Washington Naval Agreement
- C. the Great Depression → increased German support for the Nazi Party
- D. the Abyssinian Crisis → formation of a League of Nations military force

17. What was a result of the stock market crash in 1929?

- A. The USA relaxed immigration policies.
- B. The USA suffered massive unemployment.
- C. American banks extended loans to Germany.
- D. The American government limited freedom of the press.

18. What was common to both the USA and Germany during the Great Depression?

- A. Jewish immigration increased.
- B. Membership in the Ku Klux Klan rose.
- C. Public works projects were implemented.
- D. Government social programs were reduced.

19. What was a reason Britain adopted a policy of appeasement prior to the Second World War?
- A. An alliance with Germany was a priority.
 - B. The Treaty of Versailles was perceived as too severe.
 - C. A commitment to the League of Nations made it necessary.
 - D. The Prime Minister wanted to support US foreign policy objectives.

Use the following newspaper headline to answer question 20.



20. Which of the following led to the headline?
- A. the Stresa Front
 - B. the Nazi-Soviet Pact
 - C. the Munich Agreement
 - D. the Anglo-German Naval Treaty
21. Which of the following is an accurate statement about the Battle of the Atlantic?
- A. German aircraft carriers were essential in battles.
 - B. German warships attacked North American port cities.
 - C. German submarines waged war against Allied shipping.
 - D. German aircraft launched V-1 rockets at Allied convoys.
22. What was one significant outcome of the Battle of Stalingrad?
- A. Hitler was able to send troops to Italy.
 - B. The Russians were forced to retreat eastward.
 - C. A second front was established to satisfy Stalin.
 - D. Germany was denied access to the Caucasus oil fields.

Use the following quotation to answer question 23.

We have reached a turning point in the war. Pearl Harbor has now been partially avenged.

Admiral Nimitz (1942)

23. To what battle is the quotation referring?
- A. Midway
 - B. Okinawa
 - C. Coral Sea
 - D. Leyte Gulf

PART B: WRITTEN RESPONSE AND EVIDENCE**Value: 18%****Suggested Time: 30 minutes****SECTION ONE INSTRUCTIONS: Evidence Question (12%)**

Refer to documents 1 to 5 to answer question 1. Answer in paragraph form.

INDIA TO 1947**DOCUMENT 1**

I began moves to give India her independence. The main problem was how best to do this. India's Congress Party wanted a single, united India. But the leader of the Muslim League, Mohammed Ali Jinnah, wanted a separate, independent Muslim state to be known as Pakistan.

Clement Attlee, British Prime Minister (1946)

DOCUMENT 2

It has been our earnest desire that India achieve her freedom peacefully. But we have been faced with a major difficulty. The Muslim League has deliberately encouraged violence resulting in murder in many parts of India. We repeat our acceptance of partition to avoid conflict, though we are passionately attached to the idea of a united India.

Letter from Nehru to the British Governor General of India (1947)

DOCUMENT 3

The other problem was that Hindu extremists would not consider sharing power with Muslims in a future independent India.

Tony Howarth, *Twentieth Century History* (1979)

DOCUMENT 4

After its victories in the 1937 elections, the Hindu Congress Party unwisely called on the Muslim League to merge with Congress; this alarmed the League who was convinced that an independent India would be dominated by Hindus. Jinnah, the Muslim leader, demanded a separate state of Pakistan.

Norman Lowe, *Mastering Modern World History* (1982)

DOCUMENT 5

Some Congress leaders would rather have an early freedom for India than convoluted delays in settlement by not agreeing to divide India.

Vikas Kamat, *History of India* (2005)

1. To what extent were Muslims responsible for the partition of India?
Refer to the five documents provided **as well as** other historical evidence.

PART C: ESSAY**Value: 27%****Suggested Time: 45 minutes**

INSTRUCTIONS: Choose **one** of the following two questions and write a well-constructed, multi-paragraph essay in the space provided for Part C in the **Response Booklet**. Write in **ink**.

- Place a checkmark ☒ in **Instruction 4** on the front cover of the **Response Booklet**.

A **good** answer **must**:

- develop a thesis,
- use examples from throughout the history of the period 1917–1991,
- develop both sides of the argument.

4. To what extent did totalitarianism reduce the quality of life for the average citizen throughout the period 1917–1991?

OR

5. To what extent have individual leaders in democratic states been successful in gaining popular support for their actions and policies throughout the period 1917–1991?

END OF EXAMINATION

BRITISH COLUMBIA HIGH SCHOOL EXIT EXAM**Literary Selections**

1. In *Beowulf*, which Anglo-Saxon value is represented by Herot?
 - A. power
 - B. heroism
 - C. boasting
 - D. community

2. In “The Prologue” to *The Canterbury Tales*, how is the Parson described?
 - A. “a very festive fellow”
 - B. “a fat and personable priest”
 - C. “rich in holy thought and work”
 - D. “an easy man in penance-giving”

3. In Shakespeare’s Sonnet 130 (“My mistress’ eyes are nothing like the sun”), why does the speaker state that his mistress “treads on the ground”?
 - A. She is a sensible woman.
 - B. She is beautiful and attainable.
 - C. He is praising her as a real woman.
 - D. He is disappointed by her plainness.

4. Which quotation contains personification?
 - A. “*Noli me tangere*, for Caesar’s I am”
 - B. “No tear-floods, nor sigh-tempests move”
 - C. “Nor what the potent Victor in his rage / Can else inflict”
 - D. “and wanton fields / To wayward Winter reckoning yields”

5. In “A Valediction: Forbidding Mourning,” on what does “dull sublunary” love depend?
 - A. spiritual union
 - B. physical presence
 - C. common attitudes
 - D. shared experience

6. In “On His Blindness,” which metaphor does Milton use to represent his literary powers?
 - A. a talent
 - B. a yoke
 - C. a kingly state
 - D. the dark world

7. In *The Rape of the Lock*, when Pope writes “So ladies in romance assist their knight, / Present the spear, and arm him for the fight,” what has just happened?
- A. Belinda has just pulled out a “deadly bodkin.”
 - B. Chloe and Sir Plume have just confronted each other.
 - C. Clarissa has just offered a “two-edged weapon” to the Baron.
 - D. The Baron’s queen of spades defeats Belinda’s king of clubs.
8. Which characteristic of “Elegy Written in a Country Churchyard” can be seen as Romantic?
- A. It celebrates the supernatural.
 - B. It is written in iambic pentameter.
 - C. It emphasizes reason over emotion.
 - D. It deals with the lives of common people.
9. “The guests are met, the feast is set”
- Which literary technique is used in the above quotation?
- A. aside
 - B. caesura
 - C. apostrophe
 - D. cacophony
10. In “The Rime of the Ancient Mariner,” how do the sailors feel when the albatross first appears?
- A. joyful
 - B. fearful
 - C. enraged
 - D. indifferent
11. According to the speaker in “Apostrophe to the Ocean,” with what attitude does the ocean treat humanity?
- A. anger
 - B. respect
 - C. disdain
 - D. generosity
12. In Elizabeth Barrett Browning’s Sonnet 43 (“How do I love thee? Let me count the ways”), what does the speaker reveal about herself?
- A. her desire to be loved
 - B. her love for her beloved
 - C. her love for her dying father
 - D. her need to be with her beloved

13. “And this gray spirit yearning in desire
To follow knowledge like a sinking star”

In “Ulysses,” to whom does “this gray spirit” refer?

- A. Achilles
 - B. Ulysses
 - C. Tennyson
 - D. Telemachus
14. What does Arnold lament in “Dover Beach”?
- A. the loss of religious faith
 - B. the loss of romantic love
 - C. the loss of military strength
 - D. the loss of respect for nature
15. In “The Hollow Men,” how does the speaker suggest that the world will end?
- A. violently
 - B. gloriously
 - C. ominously
 - D. anticlimactically
16. In “Disembarking at Quebec,” which article suggests the speaker’s alienation from her surroundings?
- A. her pink shawl
 - B. her fine bonnet
 - C. her coral brooch
 - D. her red stockings

Recognition of Authors and Titles

INSTRUCTIONS: Select the author of the quotation or the title of the selection from which the quotation is taken.

17. "For thy sweet love remembered such wealth brings
That then I scorn to change my state with kings"
- A. Wyatt
B. Donne
C. Chaucer
D. Shakespeare
18. "And through the drifts the snowy clifts
Did send a dismal sheen:
Nor shapes of men nor beasts we ken —
The ice was all between"
- A. "Ulysses"
B. "The Hollow Men"
C. "Disembarking at Quebec"
D. "The Rime of the Ancient Mariner"
19. "Dim, through the misty green panes and thick green light,
As under a green sea, I saw him drowning"
- A. "Dover Beach"
B. "Ode to the West Wind"
C. "*Dulce et Decorum Est*"
D. "Apostrophe to the Ocean"
20. "So be it when I shall grow old,
Or let me die!"
- A. Keats
B. Shelley
C. Browning
D. Wordsworth

21. “Thou art slave to fate, chance, kings, and desperate men”

- A. Pope
- B. Donne
- C. Milton
- D. Raleigh

22. “The land’s sharp features seemed to be
The Century’s corpse outleant”

- A. “The Hollow Men”
- B. “The Darkling Thrush”
- C. “The Second Coming”
- D. “Because I Could Not Stop for Death”

23. “He wore a fustian tunic stained and dark
With smudges where his armor had left mark”

- A. *Beowulf*
- B. *The Rape of the Lock*
- C. *Sir Gawain and the Green Knight*
- D. “The Prologue” to *The Canterbury Tales*

PART C: SHAKESPEAREAN DRAMA

1 written-response question

Value: 20%

Suggested Time: 25 minutes

INSTRUCTIONS: Choose **one** of the three passages on pages 14 to 17 in the **Examination Booklet**. With specific reference to the drama, respond to one of the following statements in at least **200 words** in paragraph form. Write your answer in **ink** in the **Response Booklet**.

Place a checkmark ✓ in **Instruction 4** on the front cover of the Response Booklet.

Hamlet (*See passage on page 14.*)

2. Show the significance of this exchange between Hamlet and Gertrude.
Refer both to this passage and to elsewhere in the play.

OR

The Tempest (*See passage on page 15.*)

3. With reference both to this passage and to elsewhere in the play, show that this passage contributes to theme.

OR

King Lear (*See passage on page 17.*)

4. Discuss the parallels between the father–child relationship found both in these passages and elsewhere in the play.

2. *Hamlet (1600–1601)*

Hamlet:	Now, Mother, what's the matter?	
Queen:	Hamlet, thou hast thy father much offended.	10
Hamlet:	Mother, you have my father much offended.	
Queen:	Come, come, you answer with an idle tongue.	
Hamlet:	Go, go, you question with a wicked tongue.	
Queen:	Why, how now, Hamlet?	
Hamlet:	What's the matter now?	
Queen:	Have you forgot me?	
Hamlet:	No, by the rood, ¹ not so! You are the Queen, your husband's brother's wife, And, would it were not so, you are my mother.	15
Queen:	Nay, then I'll set those to you that can speak.	
Hamlet:	Come, come, and sit you down. You shall not budge. You go not till I set you up a glass ² Where you may see the inmost part of you!	20
		(III. iv. 9–21)

¹ rood: cross² glass: mirror

OR

3. *The Tempest (1611)*

Gonzalo:	I have inly wept, Or should have spoke ere this. Look down, you gods, And on this couple drop a blessed crown! For it is you that have chalked forth the way Which brought us hither.	200
Alonso:	I say amen, Gonzalo.	
Gonzalo:	Was Milan thrust from Milan that his issue Should become kings of Naples? O, rejoice Beyond a common joy, and set it down With gold on lasting pillars. In one voyage Did Claribel her husband find at Tunis, And Ferdinand her brother found a wife Where he himself was lost; Prospero his dukedom In a poor isle; and all of us ourselves When no man was his own.	205 210
Alonso: [To Ferdinand and Miranda]	Give me your hands. Let grief and sorrow still embrace his heart That doth not wish you joy.	
Gonzalo:	Be it so! Amen!	215
		(V. i. 200–215)

PART D: GENERAL ESSAY**1 written-response question****Value: 30%****Suggested Time: 40 minutes**

INSTRUCTIONS: Choose **one** of the following topics. Write a multi-paragraph essay (at least three paragraphs) of approximately **400 words**. Develop a **concise, focused** answer to show your knowledge and understanding of the topic. Include specific references to the works you discuss. You may not need all the space provided for your answer. You must refer to at least **one** work from the Specified Readings List (see page 20 in the Examination Booklet). The only translated works you may use are those from Anglo-Saxon and Medieval English. Write your answer in **ink** in the **Response Booklet**.

Place a checkmark ✓ in **Instruction 4** on the front cover of the Response Booklet.

Topic 5 The presence or absence of loyalty is often a theme in literature.
Support this statement with reference to at least **three** literary works.

OR

Topic 6 A journey of some kind is important to many works of literature.
Support this statement with reference to at least **three** literary works.

OR

Topic 7 The meaning of a literary work may be enhanced by its reference to another work of art or literature. Support this statement with reference to at least **three** literary works.

Note: On the following page is the reading list from which students must select one work to reference.

Specified Readings List

Anglo-Saxon and Medieval

- from *Beowulf*
- Geoffrey Chaucer, from *The Canterbury Tales*, “The Prologue”
- “Bonny Barbara Allan”
- from *Sir Gawain and the Green Knight*

Renaissance and 17th Century

- Sir Thomas Wyatt, “Whoso List to Hunt”
- Christopher Marlowe, “The Passionate Shepherd to His Love”
- Sir Walter Raleigh, “The Nymph’s Reply to the Shepherd”
- William Shakespeare, Sonnet 29 (“When in disgrace with fortune and men’s eyes”) Sonnet 116 (“Let me not to the marriage of true minds”) Sonnet 130 (“My mistress’ eyes are nothing like the sun”) *Hamlet, King Lear or The Tempest*
- John Donne, “A Valediction: Forbidding Mourning”; “Death, Be Not Proud”
- Robert Herrick, “To the Virgins”
- John Milton, “On His Blindness”; from *Paradise Lost*
- from *The Diary of Samuel Pepys*

18th Century and Romantic

- Lady Mary Chudleigh, “To the Ladies”
- Alexander Pope, from *The Rape of the Lock*
- Jonathan Swift, “A Modest Proposal”
- Robert Burns, “To a Mouse”
- William Blake, “The Tiger”; “The Lamb”

- Thomas Gray, “Elegy Written in a Country Churchyard”
- William Wordsworth, “My Heart Leaps Up”; “The World Is Too Much with Us”
- Samuel Taylor Coleridge, “The Rime of the Ancient Mariner”
- George Gordon, Lord Byron, “Apostrophe to the Ocean”
- Percy Bysshe Shelley, “Ode to the West Wind”
- John Keats, “Ode to a Nightingale”; “When I Have Fears That I May Cease to Be”

Victorian and 20th Century

- Alfred, Lord Tennyson, “Ulysses”
- Elizabeth Barrett Browning, Sonnet 43 (“How do I love thee? Let me count the ways”)
- Robert Browning, “My Last Duchess”
- Emily Brontë, “Song”
- Matthew Arnold, “Dover Beach”
- Thomas Hardy, “The Darkling Thrush”
- Emily Dickinson, “Because I Could Not Stop for Death”
- Wilfred Owen, “*Dulce et Decorum Est*”
- William Butler Yeats, “The Second Coming”
- T.S. Eliot, “The Hollow Men”
- Dylan Thomas, “Do Not Go Gentle into That Good Night”
- Stevie Smith, “Pretty”
- Margaret Atwood, “Disembarking at Quebec”

THE ONTARIO CURRICULUM

Music • Grade 8

By the end of Grade 8, students will be able to: demonstrate an understanding of the basic elements of music specified for this grade (see below) through listening to, performing, and creating music; sing and play instruments with expression and proper technique (e.g., with correct breathing or fingering); use correctly the musical terminology associated with the specific expectations for this grade; read, write, and perform from musical notation accurately and fluently; communicate their understanding and knowledge of music in appropriate ways; identify and perform music of a variety of cultures and historical periods.

Knowledge of Elements

- Read music appropriate for this grade, showing their understanding of the necessary aspects of notation (e.g., clefs, key signatures);
- Identify and perform the major scale in keys that they encounter in the music they sing or play;
- Demonstrate the ability to produce the same pitch as others, vocally or instrumentally (e.g., in pairs, in sections, in a large group);
- Identify metres and the corresponding time signatures in the pieces they play or sing;
- Play or sing music with appropriate articulation and phrasing;
- Conduct 2/4, 3/4, and 4/4 time, or a metre in a piece appropriate for their grade, correctly using standard conducting patterns (e.g., indications of upbeats, downbeats, and entries);
- Demonstrate understanding of the markings and Italian terms for dynamics, tempo, articulation, and phrasing in the music they play or sing;
- Explain the meaning of D.C. al coda, d.s. al fine, and d.s. al coda;
- Identify the type of texture in music appropriate for the grade;
- Recognize rondo form (ABACA) and theme-and-variations form (A,A1,A2, etc.) in music they perform and hear.

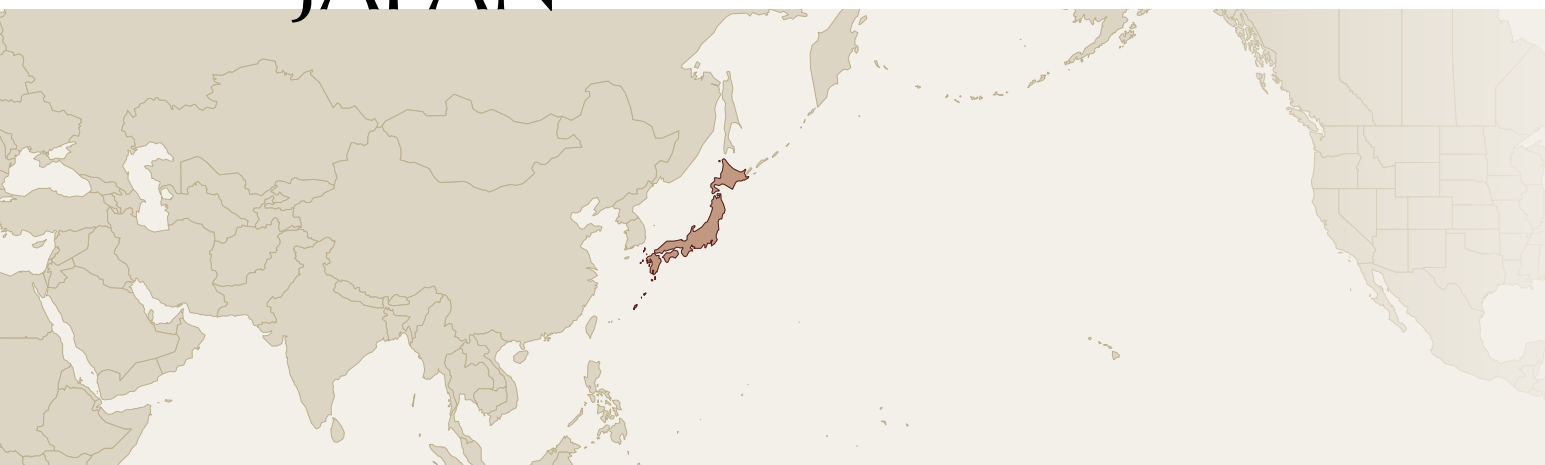
Creative Work

- Sing or play expressively pieces in various styles;
- Create musical compositions that make use of elements of music studied in this grade, write them in standard notation, and perform them;
- Create and perform a short musical that consists of contrasting songs, dialogue, and drama;
- Improvise a solo melodic line (accompanied or unaccompanied).

Critical Thinking

- Recognize and describe the difference between program music (e.g., *The Moldau* by Smetana) and absolute music (e.g., *Symphony No. 40 in G Minor* by Mozart);
- Describe some aspects of the historical context of music that they sing, play, or listen to (e.g., identify some major political events, social or philosophical movements, architectural or painting styles);
- Communicate their thoughts and feelings about the music they hear, using language and a variety of art forms and media (e.g., videotape, improvisation, watercolor paintings);
- Describe their response to a musical performance in their community.

JAPAN



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
10	5	15	6	2	14	2	2	8

Population size:	127,770,794
Student enrollment:	10,823,873 in 2005
U.S. states with similar statistics:	California would be the closest state with 6,437,202 in the 2005-06 school year.

General description of K–12 education:

Compulsory education includes six years of elementary and three years of lower secondary school. The school year is 243 days long. Japan has a national curriculum. Students who complete lower secondary school can apply to upper secondary schools or colleges of technology. In 2007, national assessments were reintroduced (since 1964). All students are assessed in 6th and 9th grade in the subjects of national language and mathematics.

Required subjects:

Japanese language, mathematics, social studies, science, moral education, music, art, health and physical education, industrial arts and home economics, foreign languages, geography and history, civics, and integrated studies.

EXCERPTS

The document included for Japan is an excerpt from the national curriculum that will be initiated in the 2009–10 school year. It was obtained from Satoshi Nara, formerly with the Embassy of Japan in Washington, DC:

- Science—grades 7–9

Note: This document was translated into English from Japanese.

NATIONAL CURRICULUM

Science • Grades 7–9

PHYSICS AND CHEMISTRY

1. Familiar Physical Phenomena

Through observation and experimentation regarding familiar facts and phenomena, to nurture an understanding of the regularity and energetic properties of light and sound, and to foster a scientific perspective and way of thinking, including an understanding of such facts and phenomena in relation to everyday life and society.

a. Light and sound

(i) Reflection and refraction of light

To conduct experiments regarding the reflection and refraction of light and to discover the regularity of reflection and refraction of light set at interfaces between different substances such as water and glass.

(ii) Function of convex lenses

To conduct experiments regarding the function of convex lenses, and to discover the relationship between the position of an object and the position and size of its image.

(iii) Properties of sound

To conduct experiments regarding sound and to discover that sound is produced by vibrations and transmitted through substances such as air and that the frequency and volume of sound is related to the manner of vibration of the sounding body.

b. Force and pressure

(i) Force

To conduct experiments involving the action of forces on objects, to discover that objects are deformed, begin to move, or move differently when forces act on those objects and to learn that forces are expressed in terms of magnitude and direction.

(ii) Pressure

To conduct experiments regarding pressure and to discover that pressure is related to the magnitude of a force and the area. In addition, to conduct experiments regarding hydrostatic pressure and atmospheric pressure and to understand the results of such experiments in relation to the weight of water and air.

2. Familiar Types of Matter

Through observations and experiments regarding familiar types of matter, to foster an understanding of changes in

the states of matter and the properties of solids, liquids, and gases, and to teach the basics of investigating the properties and changes of matter.

a. Properties of matter

(i) Familiar types of matter and properties

To investigate the properties of familiar types of matter by various methods, to discover that substances have both unique and shared characteristics such as their density and how they change when heated, and to learn skills such as how to use experimental apparatus and keep records.

(ii) Production and properties of gases

To conduct experiments in producing gases and investigating their properties, to discover the characteristics of different types of gases, and to learn skills such as how to produce and collect gases.

b. Aqueous solutions

(i) Dissolving substances

To conduct observations of the solution of substances in water, and to discover that solutes are uniformly dispersed in an aqueous solution.

(ii) Solubility and recrystallization

To conduct experiments in removing solutes from an aqueous solution, and to understand the relationship between the results of such experiments and the degree of solubility.

c. Changes in state

(i) Changes in state and heat

To conduct observations and experiments in the changes in state of matter, and to discover that mass remains unchanged although the volume of a substance varies with changes in state.

(ii) Melting point and boiling point

To measure temperatures as substances change to different states, and to discover that substances change in state at their melting points and boiling points and that substances can be separated based on differences in their boiling points.

3. Electric Currents and their Utilization

Through observations and experiments regarding electric circuits, to foster an understanding of the relationship between currents and voltage as well as the action of electric currents, and to nurture an elementary perspective and way of thinking about electric currents and magnetic fields in relation to everyday life and society.

a. Electric currents

(i) Circuits, currents and voltage

To conduct experiments to create circuits and measure the current and voltage of circuits, and to discover the regularity of electric current flowing at each point in a circuit and voltage applied to each portion of a circuit.

(ii) Currents, voltage, and resistance

To conduct experiments to measure voltage applied to a metal wire and to measure currents, to discover the relationship between voltage and current, and to discover that metal wires have electrical resistance.

(iii) Electricity and electrical energy

To conduct experiments to generate heat, light, etc. from electric currents, and to discover that heat and light can be produced from electric currents and that the amount of heat or light produced varies according to the electric power.

(iv) Static electricity and electric currents

To discover that static electricity is produced by rubbing different materials together, that forces can act across spaces between charged materials, and that static electricity and electric currents are related.

b. Electric currents and magnetic fields

(i) Magnetic fields generated by electric currents

To conduct observations of magnetic fields caused by magnets and electric currents, to understand that magnetic flux lines express magnetic fields, and to learn that a magnetic field is generated around a coil.

(ii) Forces on currents in magnetic fields

To conduct experiments using magnets and coils, and to discover that forces act when electric current flows through a coil in a magnetic field.

(iii) Electromagnetic induction and generation of electricity

To conduct experiments using magnets and coils, to discover that an electric current can be produced by moving a coil or magnet, and to understand the difference between direct current and alternating current.

4. Chemical Changes, Atoms and Molecules

Through observations and experimentation regarding chemical changes, to foster an understanding of changes in substances such as chemical compounding and decomposition and their quantitative relationships, and to nurture a perspective and way of thinking that relates these facts and phenomena to atomic and molecular models.

a. Constitution of substances

(i) Decomposition of substances

To conduct experiments in the decomposition of substances, and to discover that the components of the original substance can be deduced from the substances produced through decomposition.

(ii) Atoms and molecules

To understand that matter consists of atoms and molecules, and to learn that atoms are expressed using symbols.

b. Chemical changes

(i) Compounds

To conduct experiments to combine two different substances, to discover that the reaction produces a different kind of substance, and to understand that chemical changes can be explained using atomic and molecular models, that the constitution of a compound is expressed using a chemical formula, and that a chemical change is expressed using a chemical reaction equation.

(ii) Oxidation and reduction

To conduct experiments in oxidation and reduction, and to discover that oxygen is involved in reactions of oxidation and reduction.

(iii) Chemical changes and heat

To conduct experiments in which heat is generated by chemical changes, and to discover that chemical changes can involve the generation or absorption of heat.

c. Chemical changes and mass

(i) Chemical changes and preservation of mass

To conduct experiments to measure the mass of substances before and after chemical changes, and to discover that the total mass of reactants is equal to the total mass of products.

(ii) Regularity of changes in mass

To conduct experiments to measure the mass of substances related to chemical changes, and to discover that a certain relationship exists between the masses of the reacting substances.

5. Motion and Energy

Through observations and experiments related to the movement and energy of objects, to foster an understanding of the regularity of the motion of objects and the fundamentals of energy, and to nurture an elementary perspective and way of thinking about motion and energy in relation to everyday life and society.

a. Regularity of motion

(i) Balance of forces

To conduct experiments with two forces acting on an object and to discover the conditions occurring when the forces are balanced. In addition, to conduct experiments regarding the combination and resolution of forces and to understand the regularity of resultant forces and component forces.

(ii) Speed and direction of motion

To conduct observations and experiments regarding the motion of objects, and to learn that motion includes speed and direction.

(iii) Forces and motion

To conduct observations and experiments regarding the motion of objects with and without the action of forces, and to discover that with the action of a force, the speed of a moving object changes along with the direction of motion and passage of time; but that without the action of a force, a moving object continues to move in a straight line and at a constant speed.

b. Mechanical energy

(i) Work and energy

To conduct experiments regarding work, and to understand work and power. In addition, to conduct collision experiments, and to understand that the amount of energy possessed by an object can be measured as the work which that object can perform on another object.

(ii) Preservation of mechanical energy

To conduct experiments regarding mechanical energy, to discover the correlation between kinetic energy and potential energy, and to understand that the total amount of mechanical energy is preserved.

6. Chemical Changes and Ions

Through observations and experiments regarding chemical changes, to foster an understanding of the electrical conductivity of aqueous solutions and neutralization reactions, and to nurture an elementary perspective and way of thinking about these facts and phenomena in relation to models of ions.

a. Aqueous solutions and ions

(i) Electrical conductivity of aqueous solutions

To conduct experiments involving electric currents passed through aqueous solutions, and to discover that some aqueous solutions conduct electricity while others do not.

(ii) Constitution of atoms and ions

To conduct experiments in electrolysis, to discover that substances are generated at the electrodes, and to learn of the existence of ions. In addition, to learn that the generation of ions is related to the constitution of atoms.

(iii) Chemical changes and batteries

To conduct experiments using electrolyte aqueous solutions and two different types of metal, to discover that electric currents can be produced, and to learn that chemical energy is converted into electrical energy.

b. Acids, bases and ions

(i) Acids and bases

To conduct experiments to investigate the properties of acids and base, and to learn that the respective characteristics of acids and bases are caused by hydrogen ions and hydroxide ions.

(ii) Neutralization and salts

To conduct experiments in neutralization reactions, and to understand that water and salts are produced

when acids and bases are mixed.

7. Science, Technology and Human Beings

To promote a deeper awareness of the relationship between human life and the use of energy resources and development of science and technology, and to foster the attitude of scientifically considering and judging issues of how to protect the natural environment and how to utilize science and technology.

a. Energy

(i) Types of energy and conversion

Through observations and experiments regarding energy, to understand that various types of energy conversions are used in everyday life and society.

(ii) Energy resources

To learn that human beings obtain energy from hydro-electric, thermal, and nuclear power, and to develop an awareness of the importance of using energy effectively.

b. Development of science and technology

(i) Development of science and technology

To learn about the process of development of science and technology, and to develop an awareness of the comfort and convenience that science and technology have brought to human life.

c. Protecting the natural environment and using science and technology

(i) Protecting the natural environment and using science and technology

To scientifically consider how the natural environment should be protected and how science and technology should be used, and to develop an awareness of the importance of building a sustainable society.

NEW ZEALAND



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
11	7	5	12	10	6	4	7	3

Population size:	4,228,300
Student enrollment:	436,543 in 2008
U.S. states with similar statistics:	Kansas, Arkansas, Nevada

General description of K–12 education:

Compulsory education begins at age six and ends at age 16, with an additional two years of post-compulsory education available in high school. The school day is 200 days long. New Zealand has eight National Essential Learning Areas, defined by learning outcomes within its national curriculum. Students have up to 13 years in which to progress through eight levels of learning in each of the essential learning areas. Schools are responsible for curriculum content, pacing, assessment and reporting to parents. However, New Zealand is currently developing national standards in literacy and numeracy. During their last three years of schooling, students take tests to earn a National Certificate of Educational Achievement at either the vocational or college-bound levels.

Required subjects:

English, the arts, health and physical education, foreign languages, mathematics and statistics, science, social sciences, and technology.

EXCERPTS

The documents included for New Zealand are excerpts from the national curriculum, obtained from the New Zealand Ministry of Education:

- Science—grades 7–8

Also included are excerpts from school leaving exams for college-bound students, obtained from the New Zealand Qualifications Authority.

- Science—grade 12

NEW ZEALAND

Excerpts

NATIONAL CURRICULUM

Science • Grades 7–8

NATURE OF SCIENCE

Level 7 and Level 8 students will:

- Understand that scientists have an obligation to connect their new ideas to current and historical scientific knowledge and to present their findings for peer review and debate.
- Develop and carry out investigations that extend their science knowledge, including developing their understanding of the relationship between investigations and scientific theories and models.
- Use accepted science knowledge, vocabulary, symbols, and conventions when evaluating accounts of the natural world and consider the wider implications of the methods of communication and/or representation employed.
- Use relevant information to develop a coherent understanding of socio-scientific issues that concern them to identify possible responses at both personal and societal levels.

LIVING WORLD

Level 7 students will:

- Explore the diverse ways in which animals and plants carry out life processes.
- Explore ecological distribution patterns and explain possible causes for these patterns.
- Understand that DNA and the environment interact in gene expression.
- Explain how the interaction between ecological factors and natural selection leads to genetic changes within populations.

Level 8 students will:

- Understand the relationship between organisms and their environment.
- Explore the evolutionary processes that have resulted in the diversity of life on Earth and appreciate the place and impact of humans within these processes.
- Understand how humans manipulate the transfer of genetic information from one generation to the next and make informed judgments about the social, ethical, and biological implications relating to this manipulation.

PLANET EARTH AND BEYOND

Level 7 students will:

- Develop an understanding of the causes of natural hazards and their interactions with human activity on Earth.
- Explain the nature and life cycles of different types of stars in terms of energy changes and time.

Level 8 students will:

- Develop an in-depth understanding of the interrelationship between human activities and the geosphere, hydrosphere, atmosphere, and biosphere over time.
- Explore recent astronomical events or discoveries, showing understanding of the concepts of distance and time.

PHYSICAL WORLD

Level 7 students will:

- Investigate physical phenomena (in the areas of mechanics, electricity, electromagnetism, light and waves, and atomic and nuclear physics) and produce qualitative and quantitative explanations for a variety of unfamiliar situations.
- Analyze data to deduce complex trends and relationships in physical phenomena.
- Use physics ideas to explain a technological or biological application of physics.

Level 8 students will:

- Investigate physical phenomena (in the areas of mechanics, electricity, electromagnetism, light and waves, and atomic and nuclear physics) and produce qualitative and quantitative explanations for a variety of complex situations.
- Analyze and evaluate data to deduce complex trends and relationships in physical phenomena.
- Use physics ideas to explain a technological, biological, or astronomical application of physics and discuss related issues.

MATERIAL WORLD

Level 7 students will:

- Investigate and measure the chemical and physical properties of a range of groups of substances, for example, acids and bases, oxidants and reductants, and selected organic and inorganic compounds.
- Relate properties of matter to structure and bonding.

- Develop an understanding of and use the fundamental concepts of chemistry (for example, equilibrium and thermochemical principles) to interpret observations.
- Apply knowledge of chemistry to explain aspects of the natural world and how chemistry is used in society to meet needs, resolve issues, and develop new technologies.

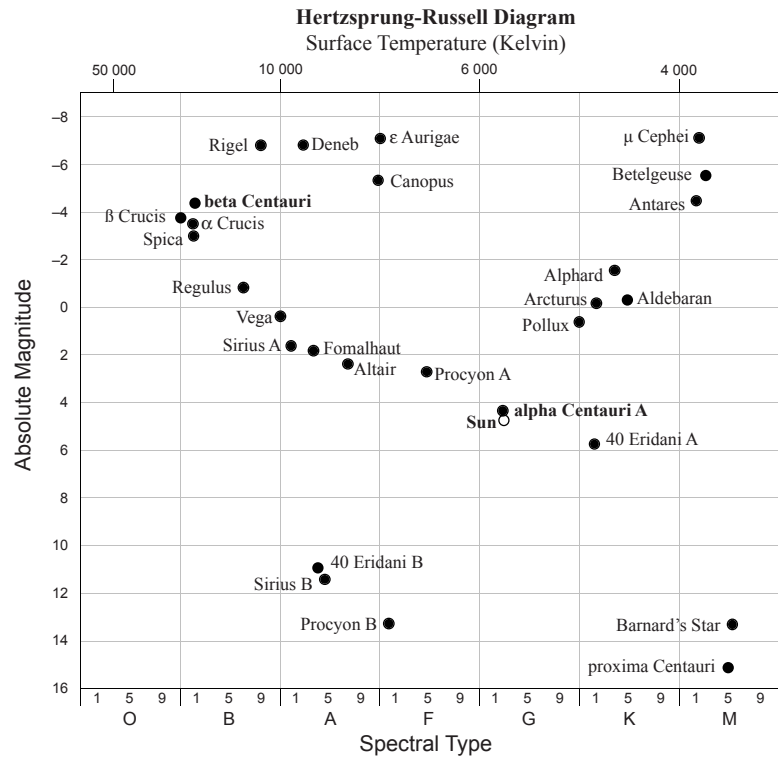
Level 8 students will:

- Investigate and measure the chemical and physical properties of a range of groups of substances, for example, acids and bases, oxidants and reductants, and selected organic and inorganic compounds.
- Relate properties of matter to structure and bonding.
- Develop an understanding of and use the fundamental concepts of chemistry (for example, equilibrium and thermochemical principles) to interpret observations.
- Apply knowledge of chemistry to explain aspects of the natural world and how chemistry is used in society to meet needs, resolve issues, and develop new technologies.

NATIONAL CERTIFICATE OF EDUCATIONAL ACHIEVEMENT EXAMS

Note: This first set of questions is on the nature and life cycle of stars.

QUESTION TWO



Alpha Centauri A, beta Centauri and our Sun are all marked on the Hertzsprung-Russell diagram (H-R diagram).

- (a) Describe THREE characteristics of the star **alpha Centauri A** using the information on the H-R diagram.
- (1) _____
- (2) _____
- (3) _____

- (b) (i) Explain what the H-R diagram tells us the two stars alpha Centauri A and beta Centauri have **in common**.

- (ii) What does the H-R diagram tell us about the **masses** of these two stars when compared with our own Sun?

- (c) Beta Centauri is near the top of the Main Sequence. It will eventually become a supernova.

Discuss what happens to a star that leaves the main sequence and becomes a supernova.

QUESTION THREE

Discuss why our Sun will never become a supernova **AND** what will happen to our Sun when it leaves the main sequence in the future.

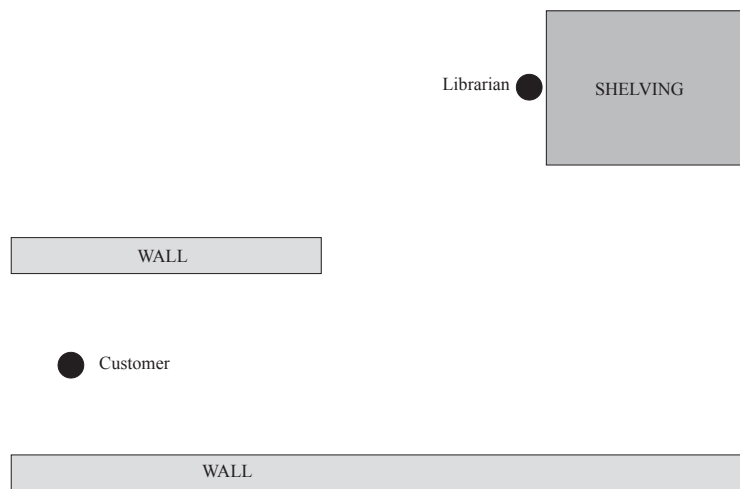
Note: This second set of questions is on physics concepts and principles to describe the behavior of light.

You are advised to spend 40 minutes answering the questions in this booklet.

QUESTION ONE: PLANE MIRROR

In a library, a librarian has to both serve customers and shelve books. The problem is that the customer is not completely visible from the shelves. It is suggested that a plane (flat) mirror on a wall would solve this problem.

- In the diagram below draw a mirror in a position on a wall so that the **librarian** can see the **customer** while the two of them are in the positions shown.
- Show, by the use of a **ray diagram** that the customer is now visible to the librarian.
- Mark accurately the position of the customer's **image**.



QUESTION TWO: LENS

- (a) Name the type of **lens** required in a camera to form a **real** image on the film.

- (b) An object 25 mm tall is photographed using a 50 mm focal length lens. The object is 120 mm from the camera lens.

Draw a scale ray diagram on the opposite page to determine the **size, distance from lens, and nature of the image** on the film.

Using your **scale diagram**, **measure** the :

- (i) Size of the image = _____ mm.
(ii) Distance of the image from lens = _____ mm.

And **describe** the :

- (iii) Nature of image: _____ , _____ , _____ .

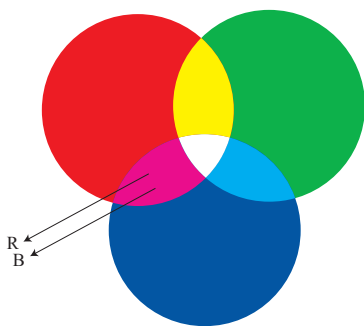
QUESTION TWO (b)



Science 90768, 2007

QUESTION THREE: COLOUR

The three primary colours, red, green and blue, are projected onto a screen in a darkened room and allowed to overlap as shown in the diagram.

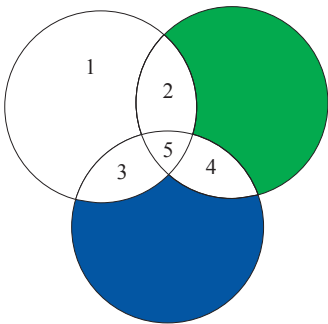


Where the primary colours overlap, they add together to form the colours magenta, yellow, cyan, and white. We see these new colours because of the different combinations of **Red** and/or **Green** and/or **Blue** light rays emitted by the new colours.

- (a) Draw rays from the *yellow*, *cyan* and *white* to show the combinations of **Red** and/or **Green** and/or **Blue** that produce these colours. The light rays coming from magenta have been drawn for you.
- (b) The Red colour is removed so that only the Blue and Green are projected.

Label the numbers 1–5 below with their resulting colours.

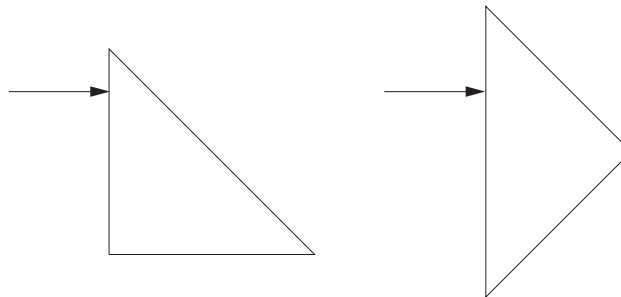
Number	Colour
1	
2	
3	
4	
5	



- (c) **Discuss** how **primary** filters work. Use red, blue and green filters to explain your answer.

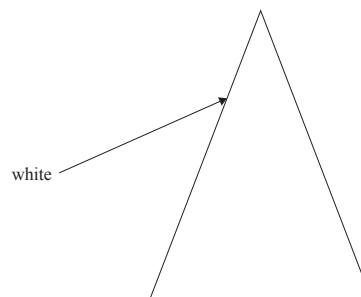
QUESTION FOUR: PRISMS

(a)



- (i) Complete the above two diagrams by showing how each light ray reflects in each of these right-angle isosceles (two sides equal) glass prisms.
 - (ii) Explain why reflection occurs inside these prisms.
- (b) The diagram shows a ray of white light passing into another glass prism.

Discuss what happens to the light ray and why. (It is recommended that you complete the light ray's path in the diagram to help your discussion.)



The Case for Content Specificity

SHEILA BYRD CARMICHAEL

INTRODUCTION

SINCE THE PASSAGE OF THE No Child Left Behind Act (NCLB) in 2001, states have focused primarily on testing basic reading and math skills and devalued rigorous content. Although policy debates about the appropriate degree of content specificity in state standards appear to have largely died down, recent calls for “fewer, clearer, higher” standards may yet resuscitate them.

This report, which examines the curriculum and assessment practices of nine of our international competitors, suggests that high-performing countries have very specific content standards in a wide range of liberal arts subjects. Interestingly, these nations’ students perform admirably on international math and science assessments even though their education does not appear to focus exclusively on those subjects. Perhaps it is time to take another look at why we in the United States remain so fearful of specifying clear expectations for teachers and students: not just for basic reading, math and science skills, but also for literature, history, and other aspects of a full liberal arts curriculum.

The most recent comprehensive review of state standards from the Thomas B. Fordham Institute (2006) finds that states “still produce vague platitudes instead of clear expectations. Knowledge is still subordinated to skills.”¹ At the same time, states that *do* maintain content-specific standards *and assessments* actually perform well on the rigorous National Assessment of Educational Progress (NAEP).² A recent study also reveals that Massachusetts 4th grade students ranked fourth when compared with countries taking the 2007 Grade 4 Trends in Mathematics and Science Study (TIMSS-4 assessment).³ Is it possible that resisting content specificity in standards and assessments is a critical but overlooked aspect of stagnant student achievement both within the U.S and internationally?

Two critically important questions emerge in a policymaking climate teeming with calls for “international

High-performing countries have very specific content standards in a wide range of liberal arts subjects.

benchmarking” and murmurs about the subsequent development of voluntary common standards—and perhaps tests. How can we expect our students to compete internationally if our competitors are holding students to very specific academic expectations while U.S. teachers must infer from vague standards what students must actually know and be able to do? How should we delineate and communicate our academic expectations to teachers who must in turn apply them to students? Many suggest that we should learn from the practices of high-performing countries. That argument, as the basis for new, “common” standards goes something like this: informed by what we know about how our global economic competitors educate their students, we can enhance our own standards and tests in the same ways to ensure that more kids will graduate from high school “college- and career-ready”—i.e., internationally competitive.⁴

This essay therefore examines, through the eyes of an ex-teacher, the level of content specificity in a sampling of standards and assessments from countries that consistently outperform the United States on Programme of International Student Assessment (PISA). The samples reveal two significant phenomena related to questions about content specificity:

- 1) that many of our international competitors not only detail rigorous, content-specific standards, but also administer content-rich (often high-stakes) assessments; and
- 2) that they offer content-specific standards and assessments in more than just the basic areas tested on PISA and prioritized by NCLB.

Because of their high performance, one might assume

that these countries place an inordinate emphasis on literacy, math, and science. Instead, these samples illustrate that students are exposed to a full complement of liberal arts coursework throughout elementary and secondary school. Perhaps it is even the case that development of deep content knowledge *enhances* literacy, as some research has suggested.⁵ At the very least, however, the samples imply that it is possible to develop basic literacy and math skills without denying students a content-rich curriculum across the range of liberal arts disciplines.

CONTENT VERSUS SKILLS: A FALSE DILEMMA

Despite recent cries about the need for so-called “21st century skills” in state standards, often at the expense of true content within a discipline, this sampling of standards and assessments indicates that these high performing countries value a much more content-specific approach to addressing a rich array of liberal arts disciplines and *disciplinary* skills. Important skills of inference and other types of “critical thinking” are obviously assumed in these examples, and would be developed as the natural consequence of good instruction, but it is real content that these countries seem to value most.

In Japan, a country that has long outperformed the United States on international comparisons of educational achievement, detailed content is specified. For example, the Japanese standards⁶ for science in grades 7–9 (and presumably for other content areas) are divided into two categories, “Purpose” and “Content,” followed a detailed description of content for each “field” (strand):

- A. *Facts and phenomena of matter and energy*
- B. *Physical facts and phenomena*
- C. *Chemical facts and phenomena*
- D. *The relationship between human life and the development of science and technology*

The overall “purpose” of the entire science curriculum for these grades is stated at the outset and immediately implies that the inquiry-based nature of science is meaningless unless inextricably combined with content. The stated purpose is “to nurture the fundamental capabilities and attitudes needed to engage in scientific inquiry, *relating to the facts and phenomena of nature...*” (see page 37, Chapter 4. Science, Grades 7–9). Some version of the statement, “with regard to the facts and phenomena,” is restated in field-specific statements of purpose that precede the content, presumably to make it clear that skills alone will not suffice (see page 37).

As an example of the level of specificity throughout, consider the category of “Chemical Changes,” one of three sub-categories within a set of expectations called “Chemical Changes, Atoms and Molecules” (within strand C, as noted above; (see page 37):

(i) *Compounds*

To conduct experiments to combine two different substances, to discover that the reaction produces a different kind of substance, and to understand that chemical changes can be explained using atomic and molecular models, that the constitution of a compound is expressed using a chemical formula, and that a chemical change is expressed using a chemical reaction equation.

(ii) *Oxidation and Reduction*

To conduct experiments in oxidation and reduction, and to discover that oxygen is involved in reactions of oxidation and reduction.

(iii) *Chemical Changes and Heat*

To conduct experiments in which heat is generated by chemical changes, and to discover that chemical changes can involve the generation or absorption of heat.

Compare the level of rigor and detail in the Japanese standards to the corresponding New Jersey state science standards (seen below) posted on the web for grades seven–eight:⁷

B. *Chemical Reactions*

1. *Show how substances can chemically react with each other to form new substances having properties different from those of the original substances.*
2. *Show that in most chemical reactions energy is transferred into or out of a system.*
3. *Demonstrate that regardless how substances within a simple closed system interact, the total mass of the system remains the same.*
4. *Illustrate how atoms are rearranged when substances react, but that the total number of atoms and the total mass of the products remain the same as the original substances.*

The level of content specificity in the Japanese standards conveys a much clearer set of expectations to teachers and students than the New Jersey standards and is typical of other content areas in the Japanese curriculum. Mastery of the standards is critical to success on entrance exams for the best universities, whereas most states have not historically assessed science. The level of detail in Japan is particularly impressive, yet content specificity is also evident in the samples from Finland, the Netherlands, Canada, Finland, Switzerland, and Korea.

In the Netherlands, a sample high school exit history exam for the college-bound reveals a remarkable level of content-based expectations for the study of history, assessed with both multiple choice questions and rather

complex open-ended questions. The questions require the skills of historical analysis, such as the examination of primary and secondary sources, but *always and clearly grounded in actual historical content that had to have been learned in order to answer the questions successfully.*

For example, consider the following presentation of a primary source and the source-based questions that follow (see page 68):

Source 3

In an 1899 plea in the magazine “De Gids,” C.Th. van Deventer argued in favor of paying off the “debt of honor” owed to the Dutch East Indies, primarily through (wealth) taxes paid by the more affluent Dutch people.

Let me then remind (the Dutch taxpayers) that in the Netherlands, the prosperity of the upper classes to which they belong is very closely related to the preservation of our colonies in the Dutch East Indies, and that there is no better way to ensure this preservation than a policy of justice and fairness. Only then will we be able to secure a long-term power unmatched by even the strongest landing forces: the respect, the love, and the loyalty of Insulinde’s large population. It is not too late yet: A large majority of natives is content (or at least not discontent) under Dutch rule, and does not know any better. But even in Indonesia, “les idées marchent” (ideas will spread) among the native population!

7. Use Source 3.

A Statement:

Van Deventer is considered one of the originators of the Dutch Ethical Policy. Nevertheless, based on this fragment, the Dutch government that introduced the Ethical Policy around 1900 would have objected to Van Deventer’s view. Explain:

- *what Van Deventer viewed as a motive for changing the colonial policy, and*
- *with which motive the Dutch government of that time responded.*

Note that the question requires factual knowledge and deep understanding of the “Dutch Ethical Policy.” Both the interpretation of the excerpt and the required explanation of the Dutch government’s proposed objections demand that students must have learned and analyzed the competing motivations that may have driven both the author of the source document and the Dutch government to support the same “Ethical Policy.” Without specific content knowledge, other skills of historical analysis required here are ineffectual. The vast majority of the exam questions are document-based and content-specific.

In a similar example from the high school exit exams for history and literature in **British Columbia (BC)** in

Canada, actual historical and literary content is essential to success. In the first case, the BC history exam requires students to answer straightforward, factual questions in selected response (multiple choice) formats. While that format has obvious limitations (and psychometricians debate the efficacy of selected response questions for measuring certain outcomes if item design is too complex), these questions function well to check understanding of basic knowledge, such as in the following questions (see pages 19 and 22):

8. Which of the following is an accurate statement about the Russian Civil War?

- A. The White Army was a unified force.
- B. The Treaty of Brest-Litovsk ended the war.
- C. The Red Army had superior morale and determination.
- D. The foreign interventionists controlled the industrial heartland.

22. What was one significant outcome of the Battle of Stalingrad?

- A. Hitler was able to send troops to Italy.
- B. The Russians were forced to retreat eastward.
- C. A second front was established to satisfy Stalin.
- D. Germany was denied access to the Caucasus oil fields.

The combination in this exam of simple selected response questions and demanding constructed response questions indicates that the exam is testing in the aggregate a breadth of rather complex content knowledge. The “Written Response and Evidence” portion of the exam [18% OF THE GRADE], for example, asks students to read five different statements from primary and secondary sources related to the causes of the partition of India (quotations from the British Prime Minister at the time, Nehru, and three secondary history texts). The required responses demands that students answer the following question (see page 23):

To what extent were Muslims responsible for the partition of India? Refer to the five documents provided, as well as other historical evidence.

Further details about how the exams are evaluated are ultimately essential for determining the real rigor of a constructed response (e.g., required length of the essay, criteria are for evaluating, such as for content? for style? for neatness?), yet it remains easy to see that the question itself demands the prior acquisition of real historical content knowledge, as well as the ability to marshal that information to form an historical analysis.

Finally, the exam includes an essay question (see page 24), for 27% of the grade, the response for which must:

- *develop a thesis*
- *use examples throughout the history of the period 1917–1991 and*
- *develop both sides of the argument*

A choice of two questions follows:

1. *To what extent did totalitarianism reduce the quality of life for the average citizen throughout the period 1917–1991?*

OR

2. *To what extent have individual leaders in democratic states been successful in gaining popular support for their actions and policies throughout the period 1917–1991?*

While they are open-ended questions indeed, they certainly require specific historical knowledge, and appear to comprise—in combination with the specific questions asked in the multiple choice section—a content-rich exam on twentieth century world history.

Turning to the grade 12 English Literature exam sample for British Columbia, it is easy to recognize a similar format and comparable level of detail requiring specific *literary* content knowledge. Selected response questions ask straightforward questions about specific works of English literature and specific terms of literary analysis (see pages 25 and 26):

In “On His Blindness,” which metaphor does Milton use to represent his literary powers?

- A. a talent
- B. a yoke
- C. a kingly state
- D. the dark world

AND

“The guests are met, the feast is set”

Which literary technique is used in the above quotation?

- A. aside
- B. caesura
- C. apostrophe
- D. cacaphony

The second section, a seven-question section called “Recognition of Authors and Titles,” requires students to identify the author of the quotation or the title of the work from which the excerpt is taken, as in (see page 29):

“The land’s sharp features seemed to be The Century’s corpse outleant.”

- A. “The Hollow Men”
- B. “The Darkling Thrush”
- C. “The Second Coming”
- D. “Because I Could Not Stop for Death”

As in the history exam, selected response questions are mixed with constructed response questions to create a rigorous exam that addresses a full complement of content knowledge in English literature. Part C is a written (25-minute) response to a question on Shakespearean drama and references specific passages from three

different plays. The student chooses the question/passage and must write at least 200 words. All questions would be impossible to answer without specific knowledge of at least one of the three plays. Finally, the 40-minute “General Essay” requires a multi-paragraph essay of 400 words. The task states, “You must refer to at least one work from the Specified Reading List,” which is reprinted in the examination booklet for the student’s reference.

The following, on the other hand, is a sample, released item from a U.S. state high school English exam.

Read this paragraph from an article about building a picket fence.

Once you have the posts, rails, and pickets, the hardest part begins—digging the holes for the posts. Posts should be approximately eight feet apart. Less than that is okay, but it can get expensive when you have to buy more posts. Much more than that can result in a lack of support and make it much easier for a fence to lean or fall over.

A paraphrase is a rewording of an excerpt that does not change the meaning or leave out important details. Which of these is a paraphrase of the paragraph above?

- A *When you have the supplies to build a fence, it is time to begin digging postholes. They should be at about eight-foot intervals. Putting the posts closer to each other won’t be a problem but may cost more. Putting them farther apart can actually make the fence topple.*
- B *When you have the supplies, “the hardest part begins—digging the holes for the posts.” They should be eight feet apart. They can be less but if they are more, the fence can lean or fall over.*
- C *Once you have the posts, rails, and pickets, the hardest part begins—digging the holes for the posts. They should be eight feet apart. Putting them closer is expensive, and putting them farther apart can cause the fence to fall over.*
- D *Once you have gathered your supplies, it is time to dig the holes for the posts. These holes should be eight feet apart. Less than that is okay. Much more than that can make the fence “lean or fall over.”⁸*

It seems reasonable to question the quality, complexity and significance of the chosen passage, as well as the rigor of the demanded task, especially when compared to those that are represented on the Canadian exams.

Even in states where the standards are strong, such as California, it is possible to develop low-level high school exams, such as the California High School Exit Exam (CAHSEE), obviating the need for students to learn the more content-specific, higher order disciplinary skills

detailed in the standards. Following is a reading excerpt from the CAHSEE and a sample released test item associated with it:

Despite Esperanto's seeming lack of popularity, it is estimated that several million people can speak the language. Many magazines are published in Esperanto, and books—from Shakespeare to Dante—have been translated into Esperanto. Esperanto leagues and organizations help maintain the language and provide interested people with information. Perhaps in the future, Esperanto will find its place as a widely used and accepted universal language.

10. Read this sentence from the passage.

Learning a new language can be time-consuming, and many people will not take the time to learn one unless they have an inclination to learn languages or see some personal benefit in doing so.

What does the word inclination mean?

- A liking
- B voice
- C profit
- D indifference

12. How does the passage reflect the themes and concerns of the 21st century?

- A It is about global communication.
- B It describes a particular language.
- C It reinforces the importance of research.
- D It focuses on one person's achievement.⁹

Indeed, what gets tested matters. Some U.S. states have developed content-based “social studies” exams, yet few states require students to pass these exams in order to receive a diploma. Where reading and literature is concerned, it is important to remember that *what* we ask students to read matters as much as *what we ask them to do* with what they read, as the international samples here—and the performance of those students—suggest.

A Word About Reading Lists

It is significant to note that four of the nine high performing countries maintain lists that name specific authors and/or texts to be studied:

- Australian territories
- Canadian provinces
- Hong Kong
- New Zealand

Three of those lists prescribe titles and/or authors, meaning the suggestions are mandatory, not recommended. Three other high performing countries on international tests also have reading lists:

- Ireland
- Singapore
- United Kingdom

...the countries reviewed here also appear to share a belief that requiring students to master basic literacy and math skills is not sufficient for defining a well-rounded curriculum.

In the United States, owing to perceived fears of overly prescriptive and/or not politically correct enough titles and authors, reading lists have long been controversial and difficult for state authorities to approve. Still, Indiana and Massachusetts (and even California) have developed *recommended* reading lists that are expansive in terms of both literary and informational texts, genres, and cultures. Unfortunately, because these lists are not required reading, they do not carry the weight that could help develop in U.S. students the ability to appreciate and discuss our common literary heritage.

The countries represented here, on the other hand, do not appear conflicted about offering teachers specific guidance about the quality and complexity of required reading. It is worth noting that neither do these countries resist requiring that a specific percentage of that country's literature be included on the list. Further analysis of how other countries determine what students will read in school, particularly those that are much older than the United States, is a much-needed research task in the context of renewed efforts to develop some kind of voluntary national standards. Americans appear to have become disdainful of the idea that we should study and understand our own literary heritage, an important component of cultural literacy that would help nurture good citizens, as perhaps these countries have already determined.

BREADTH OF LIBERAL ARTS EXPECTATIONS

In addition to maintaining specificity of content, the countries reviewed here also appear to share a belief that requiring students to master basic literacy and math skills is not sufficient for defining a well-rounded curriculum. Nearly all the countries discussed in this essay require students to study the arts, literature, history, geography, and civics in addition to literacy and mathematics. A few of them (Korea, Finland, and the Netherlands) even require the study of religion and/or Ethics. Notably, all require the study of at least one foreign language, if not more, unlike the United States, where only four¹⁰ states require the study of a foreign language for high school exit, a number up from only one state and the District of Columbia just five years ago.

In **Finland**, which ranked second in math and first in science on both the 2003 and 2006 PISA, the required

subjects of study include mother tongue (i.e., Finnish or Swedish) and literature, the other national language, foreign languages, environmental studies, civics, religion or ethics, history, social studies, mathematics, physics, chemistry, biology, geography, physical education, music, visual arts, craft, home economics and “pupil counseling.” U.S. schools, on the other hand, appear to be concentrating efforts to develop “STEM” (science, technology, engineering and math initiatives to make our graduates competitive for highly-skilled and highly-compensated jobs both here and abroad. Requiring the liberal arts does not seem to have precluded Finland from performing well in science and math.

Although they are somewhat broadly worded, the Finnish music standards in grades 5–9, (see page 3), detail music-specific objectives, including performance, as in:

- *Master, as individuals, the basic technique of some rhythm, melody, or harmony instrument so as to be able to play in an ensemble*
- *Know how to listen to music and make observations about it, and present justified opinions about what they have heard*
- *Know how to listen to both their own music and music produced by others, so as to be able to make music together with others*
- *Recognize, and know how to distinguish between, different genres of music and music of different eras and cultures*

The **Ontario** curriculum outlines even more specific expectations for music in a curriculum that also addresses language arts, mathematics, arts education, health education, physical education, science and technology, and social studies. For example, at grade eight, the curriculum specifies such theory and performance standards as (see page 34):

- *Read music appropriate for this grade, showing their understanding of the necessary aspects of notation (e.g., clefs, key signatures);*
- *Identify and perform the major scale in keys that they encounter in the music they sing or play;*
- *Demonstrate the ability to produce the same pitch as others, vocally or instrumentally (e.g., in pairs, in sections, in a large group);*
- *Identify metres and the corresponding time signatures in the pieces they play or sing;*
- *Play or sing music with appropriate articulation and phrasing;*
- *Conduct 2/4, 3/4, and 4/4 time, or a metre in a piece appropriate for their grade, correctly using standard conducting patterns (e.g., indications of*

upbeats, downbeats, and entries);

- *Demonstrate understanding of the markings and Italian terms for dynamics, tempo, articulation, and phrasing in the music they play or sing;*
- *Explain the meaning of D.C. al coda, d.s. al fine, and d.s. al coda;*
- *Identify the type of texture in music appropriate for the grade;*
- *Recognize rondo form (ABACA) and theme-and-variations form (A, A1, A2, etc.) in music they perform and hear.*

Canada has ranked in the top ten performing countries in math on the PISA in each administration since 2000, a fact that may lend some support for studies that suggest a correlation between the study of music and a facility with math.¹¹

Sample college matriculation exams from **Switzerland** demonstrate that history and geography—among the required content areas—are not necessarily conflated into a social studies curriculum. Alternatively, each of these distinct disciplines carries its own weight among those required, including: one national language (depending on the region, German, French, Italian or Romanic), mathematics, history and political science, geography, science, drawing and design, handicrafts, music, and sports.

Finally, in **Korea**, which has ranked as a top ten performing country in both math and science on every PISA administration since 2000, the national curriculum takes the additional step of delineating *the number of hours* to be devoted to each required content area. It spans a wide variety of liberal arts content areas—beyond literacy, math, and science: Korean Language, Moral Education, Social Studies, Mathematics, Science, Practical Arts (Technology, Home Economics), Physical Education, Music, Fine Arts, and Foreign Language (English). A significant number of hours are devoted both to music and the arts at every level of schooling. More hours are required for Korean language arts than for math in the early grades (through year seven) (see page 11). In years nine and ten, more hours are required for geography, politics and economics than for either mathematics or science. A teacher in Korea would have no trouble understanding exactly what s/he is accountable for teaching, nor what students must learn in order to succeed in school.

In fact, the countries discussed here include a breadth of study in the liberal arts. In each case they are called out as distinct disciplines, specifically “history,” “geography,” and “civics,” rather than just “social studies,” suggesting that these countries value the disciplinary ways of thinking and the content unique to each of other content areas.

CONCLUSION

While the samples discussed here do not themselves provide a definitive and comprehensive view of standards-based accountability systems in top-performing countries, they certainly offer a compelling and current glimpse into systems that clearly value content-specific expectations for students in elementary and secondary school. The assessments reviewed all demand specific content knowledge in both history and literature, something that many states in the U.S. have been reluctant to do. Instead, the practice in the U.S. has been to blur the lines among history, civics and geography (into “social studies”) and to prioritize vaguely-worded skills-based standards in language arts instead of requiring the examination of rich literary texts and important expository texts. With so much attention being given to so-called “twenty-first century skills” in the United States, it might be wise to examine what really works in high-performing countries before concluding that defining specific content in standards and holding teachers and students accountable for addressing them is somehow unnecessary or passé.

It is easy to point to other important attributes of the countries’ educational systems that contribute to their success, such as the content knowledge and preparation of the teachers themselves. Other cultural proclivities, such as the importance given to education, may also differ from those that are generally evident in the United States, but if in fact the United States is lurching towards some form of national standards, we would be wise to examine more closely the systems of countries that already have this structure in place. In particular, we should look beyond “standards” and examine curricula carefully, especially the content area requirements, reading lists, and the relative emphases in hours of study required at various grade levels. It appears that our competitors value a broad and rich liberal arts education, rather than just literacy and math, where the priorities in the U.S. have shifted in recent years. The liberal arts approach does not seem to have disadvantaged these countries in internationally tested subject areas, and it may indeed be worth studying whether the liberal arts approach might be part of the reason for their success.

AUSTRALIA



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
13	8	7	11	6	4	6	8	4

Population size:	21,015,042
Student enrollment:	3,417,000 in 2007
U.S. states with similar statistics:	Florida, Texas, and Pennsylvania

General description of K–12 education:

In most of the states and territories compulsory education begins at six and completes at 15, and the school year is 200 days long. Australia does not have a national curriculum. But there is a process underway to develop one covering English, math, science, history, languages, and geography. The National Curriculum Board, an organization made up of members representing each type of school (independent, public, and Catholic), has been responsible for developing frameworks for the national curriculum. Since 2008, primary and lower secondary level students are assessed at grades 3, 5, 7, and 9 in literacy and numeracy. Since 2003, a sampling of students has been tested in grades 6 and 10 in one of the following areas: science, civics and citizenship, or information and communication technologies. There is no national system of assessment at the upper secondary level, but every state and territory has an external certification exam that students take in 12th grade. In addition to signifying school completion, these exams are also used in ranking students for further education.

Required subjects:

The arts, English, health and physical education, languages, mathematics, science, studies of society and the environment, and technology.

EXCERPTS

The documents included for Australia are an excerpt from the history framework being used to develop a national curriculum and a portion of a civics and citizenship test given to a national sample of students:

- History—grades 7–10
- Civics and Citizenship—grade 6

AUSTRALIA

Excerpts

NATIONAL HISTORY CURRICULUM FRAMING DOCUMENT

History • Grades 7–10

CURRICULUM FOCUS

The Grades 7–10 history curriculum will specify the required learning in terms of historical concepts, understandings and skills, through overviews and depth studies. Depth studies may include episodes of key significance to the period of study. Some depth studies will provide options, including comparative options and school developed options where appropriate, so that the required learning can be developed in a range of historical contexts. This will enable teachers to meet the interests and needs of their students. A depth study should incorporate interconnections and comparisons within a historical period where appropriate.

The number of depth studies and the amount of time allocated to each study will be determined according to considerations of feasibility, conceptual ability and student engagement.

Students will develop historical skills which include:

- learning how to use, with facility, common historical terms for dealing with chronology and time-related historical concepts and continuing to acquire a sound grasp of the sequence of events
- asking and exploring inquiry questions in detail, finding relevant and comprehensive answers and providing sound explanations and conclusions for historical events
- using a wide range of different forms of evidence in providing historical explanations, recognizing how these forms of evidence may vary in their value
- developing a range of appropriate techniques of organization and communication.

It is proposed that the history curriculum should follow a sequence:

Students should have an appreciation of the major civilizations of Europe, Asia, Africa, America and Australia. They should understand Australian history within a comparative framework that embraces the Indigenous and settler components, and they should be aware of its regional and global dimensions.

UNIT 1:

History from the time of the earliest human communities

to the end of the Ancient period (c. 60,000 BC – c. 500 AD) *This period of human history establishes the defining characteristics of civilisations. It encompasses transitions in human society from mobile hunter-gathering to agriculture and the growth of cities. It is in this period that the first identifiable individuals emerge from the historical record. This period also provides an opportunity to trace the movement of peoples across the world and to investigate the early peopling of Australia. The origins of many modern Australian institutions and practices can be traced back to the legacy of ancient civilizations, particularly Greece and Rome.*

Themes to be explored in the development of depth studies include:

- movement of peoples
- human transformation of the environment
- characteristics of civilizations—early forms of government, religion, society and culture
- rise and fall of large empires
- heritage
- nature of history, role and methodologies of the historian.

This unit will provide an overview of the period along with depth studies which might include: human migration out of Africa, the early peopling of Australia, Ancient Japan and Ancient Greece.

UNIT 2:

History from the end of the Ancient period to the beginning of the Modern period (c. 500–1750)

This span of human history was marked by significant change and continuity in major world civilizations; it was the period when the modern world began to take shape, through expanding horizons and increasing differentiation of societies. Through an investigation of civilizations, world exploration and events students develop an understanding of their significance for modern times.

Themes to be explored in the development of depth studies include:

- relationships between religion, rulers and people
- social structure
- health and disease
- scientific and technological change
- impact of beliefs and values
- cultural contact and conflict
- exploration and imperialism.

This unit will provide an overview of the period along with depth studies which might include: life in Medieval Europe, the Crusades, Marco Polo, Elizabeth I, the Aztecs, the scientific revolution in Europe compared with technological advances in China and the extension of European empires.

UNIT 3:

The Modern World and Australia (1750–1901)
The transformation of the 'Old World' and the creation of 'New World' settler societies such as Australia define this era. The time period provides an opportunity for students to gain an understanding of Asian-European relations including the European discovery and settlement of Australia and the responses of Indigenous peoples. Students will gain an appreciation of the consequences, intended and unintended, that arose from the various actions that occurred.

Themes to be explored in the development of depth studies include:

- forced and voluntary movement of people
- Indigenous-settler relations
- early impact of industrialization
- social, economic, political and cultural development
- revolution and reform
- nationalism and federation.

This unit will provide an overview of the period along with depth studies which might include: the slave trade, the impact of industrialization, European settlement of Australia and the American Civil War.

Through direct and comparative study, Australian history will occupy approximately 40 per cent of this unit.

UNIT 4:

Australia in the Modern World (1901–present)
The twentieth century was an important period in Australia's social, economic, political and cultural development. The transformation of the modern world through conflict and cooperation provides a necessary context for understanding Australia's development and Australia's place within the Asia-Pacific region. Of particular significance is the increasing recognition of the rights of Australia's Indigenous peoples and the search for reconciliation.

Themes to be explored in the development of depth studies include:

- global conflict and collective peace
- migration and nation building
- mass communication and popular culture
- dictatorship and democracy
- rights and freedoms
- decolonization and globalization

- active citizenship.

This unit will provide an overview of the period along with depth studies which might include: Australia's involvement in World War I, post-war migration to Australia, the civil rights movement in the United States or apartheid in South Africa compared with Indigenous rights in Australia, the Cold War and the fall of the Berlin Wall, the influence of globalised American culture on Australia and elsewhere, decolonization of the Asia-Pacific and the growth of environmentalism.

Through direct and comparative study, Australian history will occupy approximately 60 per cent of this unit.

NATIONAL ASSESSMENT

Questions 1 and 2

Below is a notice pinned up at Elsmouth Primary School.

**Elsmouth Primary School
Year 6 Election for Class Captain**

- All candidates (people wanting to be elected) must make a \$30 donation to the school library.
- Each candidate must give a short speech to the class explaining why they are the best person for the job of Class Captain, and what they would do if they were elected.
- There will be two rounds of voting.
- In the first round each person in Year 6 votes by standing up and telling the class who they are voting for.
- Each person has one vote.
- In the second round each person will be asked to vote secretly for one of the two candidates who received the most votes in the first round.
- The new Class Captain is the candidate who had the most votes in the second round of voting.

☐

Q1 Name two things about this class election that you think are democratic.

1. _____
2. _____

☐

Q2 In your own words name two things about this class election that you think are **not** democratic.

1. _____
2. _____

Question 3

☐

- Q3** In Australia, how does someone become a member of parliament?
- ☐ by a random ballot of anyone who expresses interest
 - ☐ by being nominated by a current member of parliament
 - ☐ by standing for election and being voted in by the public
 - ☐ by making a written application to parliament, and being interviewed

Questions 4 and 5

In each Australian state or territory, the law says people have to wear helmets whenever they ride their bikes.

☐

- Q4** Who made this law?
- ☐ the police forces
 - ☐ the parliaments
 - ☐ the Australian Medical Association

☐

- Q5** Simon and Sophie are discussing this law.
Read the conversation and complete Sophie's reply.
- Simon:* I don't see the need for this law. I know the risks. If I have an accident, it's only me who gets hurt. So it should be my choice.
- Sophie:* No, it isn't just your choice, because ...

Question 6

☐

- Q6** In early colonial times one of the major complaints of the free settlers was that they
- ☐ did not have the same rights as convicts.
 - ☐ could not avoid customs taxes.
 - ☐ were not represented in government.
 - ☐ were not able to return to Britain.

Questions 7 and 8

Below is a picture of the Australian flag. It was selected as the winning design from a public competition and first raised on 3 September 1901.



- Q7** Complete the table below by explaining what each of the symbols represents about Australia.

☐☐☐

Symbol	Represents
A The Union Jack	
B The Southern Cross	
C The seven-pointed star	

The Australian Aboriginal flag below was designed by Harold Thomas, an Aboriginal rights activist and artist. This flag was first raised on 12 July 1971.



The yellow circle in the middle of the flag represents the sun.

Q8 Complete the table below by explaining what each of the symbols represent about Aboriginal Australia.

Symbol	Represents
<input type="checkbox"/> A The black colour at the top of the flag	
<input type="checkbox"/> B The red colour at the bottom of the flag	

Question 9

- ☐
- Q9** Which of the following is one of the Governor General's official responsibilities?
- ☐ to suggest new laws
 - ☐ to sit on the High Court
 - ☐ to swear in new Governments
 - ☐ to control Australia's Government

Questions 10 to 13

The Australian Citizenship Pledge is made by people when they become citizens of Australia.

The Australian Citizenship Pledge

From this time forward, under God*,
I pledge my loyalty to Australia and its people,
Whose democratic beliefs I share,
Whose rights and liberties I respect, and
Whose laws I will uphold and obey.

*The words 'under God' are optional.

☐

Q10 Why do you think that people are allowed to choose whether or not they say the words 'under God'?

☐

Q11 Why do you think that people who are Australians by birth or grow up as Australian citizens are **not** asked to make this pledge?

☐

Q12 The pledge suggests that Australian citizens

- ☐ have both freedoms and responsibilities.
- ☐ are required to be loyal only to Australia.
- ☐ should always agree with each other.
- ☐ have more freedoms than citizens of other countries.

☐

Q13 One principle of democracy is that all people are entitled to hold their own opinions.

The Citizenship Pledge includes the line 'Whose democratic beliefs I share'.

Do you think it is right for the pledge to require people becoming Australian citizens to have democratic beliefs?

☐ Yes **OR** No ☐

Put a ✓ in **one** box and explain your answer.

Question 14

☐

- Q14** In Australia, national elections for the Federal Parliament are held
- ☐ every year.
 - ☐ only when the Prime Minister resigns or dies.
 - ☐ whenever the Government and the Opposition disagree on an issue.
 - ☐ at least once every three years.

Question 15

The table below contains a series of statements about life in Australia.
Decide if you think each statement refers to a **responsibility** Australian citizens have. Indicate your answer by circling 'True' or 'False' for each statement in the table, as in the shaded example.

☐

Q15 Australian citizens have a responsibility to ...		
vote at elections if 18 or over.	True	False
pay a percentage of what they earn to the Federal government.	True	False
give a certain percentage of their income to a registered charity.	True	False

Question 20

☐

Q20 Which of the following is a true statement about the relationship between the Australian Federal Government and the State and Territory Governments?

- ☐ The Federal Government chooses the State and Territory Governments.
- ☐ The Federal Government is elected by the State and Territory Governments.
- ☐ The Federal Government gives money to the State and Territory Governments.
- ☐ The Federal Government is made up of all of the State and Territory Governments working together.

Question 21

Sometimes democratic governments make decisions that they believe the majority of the public disagrees with.

☐

Q21 Give a good reason for a democratic government to do this.

NETHERLANDS



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
5	9	11	4	8	9	DID NOT PARTICIPATE		

Population size:	16,381,693
Student enrollment:	1,597,480 in 2007–08
U.S. states with similar statistics:	Georgia, Michigan

General description of K–12 education:

Compulsory education in the Netherlands begins at age 5 and lasts for 12 full years. The school year is 230 days long. The Netherlands has common standards, referred to as Core Objectives. Once primary education is completed, students have several secondary education options: pre-vocational secondary education (4 years), senior general secondary education (5 years), or pre-university education (6 years). The national institute for educational measurement (CITO) develops pupil attainment tests, which are used as secondary school entrance exams. The majority of schools use the CITO test, but it is not a requirement. In 2010, The Netherlands will hold a conference to discuss expanding the role of history in the core objectives.

Required subjects:

Dutch, English, arithmetic and mathematics; social and environmental studies (including geography and history; science (including biology); citizenship, social and life skills (including road safety); healthy living; social structures (including political studies and religious and ideological movements); creative expression (including music, drawing, and handicrafts); sports and movement.

EXCERPTS

The document included for the Netherlands is an excerpt from a school leaving exam for college-bound students obtained from CITO International:

- History—grade 12

Note: This document was translated into English from Dutch.

NETHERLANDS

Excerpts

SCHOOL LEAVING EXAM FOR COLLEGE-BOUND STUDENTS

The Colonial Relationship between the Netherlands/ the Dutch and the Dutch East Indies

1. Suppose:

Two shipwrecks of ships that were on their way to the Dutch East Indies are discovered. One was loaded with barrels full of silver two-and-a-half guilder coins and ballast such as bricks. The other carried a cargo of cotton fabric from Twente (“katoentjes”). Explain which wreck is from the VOC (Dutch East Indies Company) era and which is from the NHM (Netherlands Trading Company) era.

2. The VOC employed chaplains for its own personnel. These chaplains were forbidden from spreading their belief in the Dutch East Indies. Explain why the VOC prohibited this, and name one reason why this prohibition did not apply to the Moluccan Islands.

SOURCE 1

Around 1827, Johannes Olivier, director of the “Landsdrukkerij” (National Printing Office) at Batavia, gives a description of the domestic life of the colonial “oudgast” (veteran of the tropics).

Thus, the oudgast emerges from his sleeping quarters at around 5 AM dressed in a “kabaai” and a “sarong.” The kabaai is a type of loose robe made of cotton or chintz; the sarong is a garment that is completely unknown in Europe, and consists of a cotton cloth, printed with a floral or checkered pattern, and looks like a wide bottomless sack. The wearer steps into the garment feet first and rolls it around his loins, after which he tucks the tip into the garment, giving the appearance of a women’s skirt. (...) Dressed in this morning outfit, the oudgast strolls up and down the gallery or veranda wearing slippers, but no socks. (...)

After a refreshing bath, he retreats inside and, unabashedly sporting the airy morning attire described previously, makes his way to the table, where an abundant breakfast is already laid out.

Breakfast consists half of European, and half of native dishes. The primary components are nasi, curry, sambal or another side-dish with fried fish, cold meat, pork chops, eggs, etc.

3. Use Source 1.

This description is consistent with the contacts between the Dutch and the population of the Indonesian archipelago around 1830. Clarify this by:

- naming one characteristic of those contacts and
- using one fact from the source to show that this text is consistent with this, and
- (ignoring the source) indicating what change took place in those contacts in approximately 1900.

SOURCE 2

An anonymous political cartoon entitled “De Groothandelaar” (The Wholesaler), circa 1840



Explanation: The crate, the barrels and the bags on the head of the sea monster are marked with the letters “NM”, an abbreviation for “Nederlandsche Handel-Maatschappij” (Dutch Trading Company), and the letters “mo-no-po-li” (monopoly).

4. Use Source 2.

This cartoon about the NHM belongs in a conservative newspaper of that time. Show that this statement is correct by:

- using one element in the cartoon to explain what criticism is being leveled at the NHM, and
- explaining why this is consistent with the mindset of conservatives of that time.

5. The following events in the history of Indonesia are listed in random order:

1. Proclamation of the Coolie Ordinance.
2. The Agrarian Law takes effect.
3. Opening of the Suez Canal.
4. The Lombok expedition.
5. End of the Atjeh War.
6. The first private enterprises receive concessions for minerals exploration.

Place these events in the correct chronological order, from earlier to later. Record the numbers only.

6. During and after the Cultivation System, Java's feudal/ agrarian society was increasingly replaced by a money-based economy. Explain why for many Javanese farmers the introduction of a monetary economy constituted a change for the worse.

SOURCE 3

In an 1899 plea in the magazine "De Gids", C.Th. van Deventer argued in favor of paying off the "debt of honor" owed to the Dutch East Indies, primarily through (wealth) taxes paid by the more affluent Dutch people.

Let me then remind (the Dutch taxpayers) that in the Netherlands, the prosperity of the upper classes to which they belong is very closely related to the preservation of our colonies in the Dutch East Indies, and that there is no better way to ensure this preservation than a policy of justice and fairness. Only then will we be able to secure a long-term power unmatched by even the strongest landing forces: the respect, the love, and the loyalty of Insulinde's large population. It is not too late yet: A large majority of natives is content (or at least not discontent) under Dutch rule, and does not know any better. But even in Indonesia, "les idées marchent" (ideas will spread) among the native population!

7. Use Source 3.

A Statement:

Van Deventer is considered one of the originators of the Dutch Ethical Policy. Nevertheless, based on this fragment, the Dutch government that introduced the Ethical Policy around 1900 would have objected to Van Deventer's view. Explain:

- what Van Deventer viewed as a motive for changing the colonial policy, and
- with which motive the Dutch government of that time responded.

SOURCE 4

Dutch social democrat D.M.G. Koch was a journalist in Bandung. In 1927, Sukarno invited him to become a member of the Bandoengse Algemene Studieclub (Bandung general study club), a precursor to the PNI. He describes this in his memoirs:

I had only been a member of the Studieclub for a short time when Sukarno asked me to give a lecture (...). I suggested I speak about Gandhi. Sukarno and his supporters had adopted the non-cooperation principle, which I considered wrong, and I thought it would be a good idea to point out the consequences of this policy in then British India. While I laid out my argument, my audience was silent, although I knew and felt that the majority of them disagreed: a subtle sense of courtesy kept them from interrupting and voicing criticism. After I was through, however, there was plenty of discussion. The overall gist of the objections was that nobody wanted anything to do with a government that neglected the interests of the population and impeded the development of the native society. In itself, I could appreciate that sentiment, which showed national awareness, the desire for an identity. But I disagreed with the position that this automatically necessitated a refusal to utilize the facilities created by the colonial regime in the best interests of the population to the extent possible. In the end, I received a perfunctory, unexcited applause.

I remember another experience I had as a member of the Studieclub. A number of members, including Dr. Tjipto Mangoenkoesoemo, nominated me for a board position, which I accepted. Latif objected. He did not want a Dutchman on the board. "What people always say about us Indonesians," he said, "is that we need help from Europeans to achieve anything, that we cannot do anything ourselves." He did not have a problem with me personally; his resistance to my candidacy was based on principle. I withdrew my candidacy.

8. Use Source 4.

In 1927, the author of this text is a well-known member of the SDAP ("Sociaal-Democratische Arbeiders Partij"—Social-Democratic Labor Party), the precursor to the present day PvdA (Labor Party). Explain how his opinion about the collaboration of Indonesian nationalists with the Dutch colonial government typifies the social-democratic view of the manner in which political goals should be attained.

9. Use Source 4.

In this text, Koch shows the failure of the association concept. Explain.

SOURCE 5

Shortly after Indonesia declared its independence, Sukarno gave his first presidential speech on August 23, 1945.

For twenty-five years, we have begged and pleaded for military training, so that we would be able to defend ourselves. All to no avail! Nevertheless, the Dutch declared war on Japan, without consulting us. Because of this and because of their subsequent cowardly flight, they placed us at the mercy of the Japanese occupation and plunged us into the most profound misery of war, famine, disease, and poverty. They have not lifted a finger to liberate us. But now that Japan has been forced to surrender by the American nuclear bomb, they want to return, to enslave us and render us defenseless again, so that we can be plunged into misery yet again soon. Never! We would sooner fight to the death.

10. Use Sources 4 and 5.

In Source 5, Sukarno implicitly refers to the discussion that took place among Indonesian nationalists during the 1920's about cooperation vs. non-cooperation. Describe Sukarno's view of this discussion by:

- first describing the Indonesian nationalists' position on this issue in 1927 (Source 4), and
- then clarifying how Sukarno represented this position in 1945 (Source 5), and
- then explaining this representation (without using the source material).

SOURCE 6

Photograph of the Van Heutsz Monument, Batavia, 1945



The monument reads: Indonesia never again the "life-blood" of any nation! Graffiti on the side of the monument reads: "The birth-right of a nation: self-determination."

11. Use Source 6.

A statement:

The inscriptions on the monument in this photograph show that the Indonesian nationalists' propaganda accurately assessed the international relationships of the time. Name one argument that would support this statement, and give one reason why specifically the Van Heutsz monument was used for this text.

12. A sentence from a Dutch history book:

"On December 27, 1949, the transfer of sovereignty was signed, granting Indonesia independence."

Explain what objection an Indonesian might have to this representation of events.

13. In 1950, Sukarno put an end to Indonesia's federal statehood by declaring it a unified state. Explain why this event:

- was unacceptable to a large part of the inhabitants of the Moluccan Islands, and
- made the Dutch government decide against transferring New Guinea to Indonesia as planned.

14. Around 1948 and around 1962, the Netherlands and Indonesia were at odds. The United States played a role in both conflicts. Explain:

- the role played by the United States during the conflict around 1948, and
- the role played by the United States during the conflict around 1962, and
- what continuity can be detected in the role played by the United States in both conflicts, and
- how this position on the United States' part can be explained.

To War! European Wars, 1789–1919.**War as a Societal Phenomenon**

15. For the French revolutionary government, the coalition wars that broke out after the French Revolution were motivated by both power politics and ideology.

Explain this statement for both motivations.

16. The French Revolution had a large impact on the social composition of the French army. Explain.

SOURCE 7

A letter from Germany from Frans Carooos, a soldier in the French army, to his family in Hulst (Zeeland Flanders), dated 1813.

Erfurt, August 29, 1813

My dear brother and sister, uncle, aunt, and cousins in Hulst:

I am writing to let you know that I am in good health. I hope the same goes for you. I also wanted to tell you that I had been suffering a fever for some time, but that has now subsided. I also wanted you to know that life here is very expensive, and those with no money are condemned to deep poverty. As you can imagine, with so many people, everything is expensive. Also, I am garrisoned in this city; we are at the local barracks, which already houses many soldiers. Everyday, injured are brought in. Over eight days, I have seen 9,000 of them coming through. Although I cannot, or may not, write any news, I hope to be home soon.

And I would very much appreciate it if you could send me 20 francs at this address immediately, without waiting two days, because I fear I may not be here much longer (...)

17. Use Source 7.

Suppose: You are studying the socio-economic aspects of the Napoleonic wars. You find this letter and wonder whether this source would be useful for your study. Discuss the usefulness of this source for your study of the socio-economic aspects of the Napoleonic wars by:

- first deriving a socio-economic aspect of the Napoleonic wars from the source, and
- then giving one argument in favor of and one argument against the reliability of the information provided in this source, and
- finally giving one argument in favor of and one argument against the representativeness of this source for your study.

18. The following events are all connected to the Crimean War:

1. The Russian czar claims patronage over the Orthodox Christians in the Turkish Empire.
2. Great Britain institutes military censorship.
3. The Grand Alliance is formed at the Vienna Congress.
4. In Turkey, a discussion starts about the choice between reform in the Western sense and a return to Islamic rule.
5. Russia defeats the Turkish fleet in the Black Sea.
6. Sebastopol captured by Great Britain and France after a siege.
7. Czar Alexander II succeeds his father, Nicholas I, and accepts Napoleon III's peace proposal.

Place these events in the correct chronological order, from earlier to later. Record the numbers only.

SOURCE 8

In 1857, Florence Nightingale wrote the following in response to questions from a British parliamentary fact-finding committee about medical treatment in the army:

We have more information about the medical history of the Crimean War than about that of any other war. In aggregate, these data constitute complete proof that, after the disaster caused by neglect, the army has attained the highest status of health and efficiency. Nowhere in history is such an example to be found. It is the complete experiment (conducted by myself in the Crimea) on a giant scale.

19. Use Source 8.

This source leads you to make the following statements:

- The Crimean War led to a change in the organization of the British army.
- This source shows a change in the role of women in Great Britain after the Crimean War.

Support each statement.

20. The French-German war of 1870–1871 was supposed to offer both Napoleon III and Bismarck a solution to their political problems. Name one such political problem for each country, and explain how it could be solved by the war.

SOURCE 9

This painting dated 1878 entitled “Kaiserproklamation” (Imperial Proclamation), portrays the declaration of the German Empire in 1871. It shows Bismarck (in white, in front of the podium) and Emperor Wilhelm I (on the podium) surrounded by cheering German rulers and high officers.



21. Use Source 9.

Bismarck was given a central position in this painting.
Name:

- one reason why this painting may be considered propaganda, and
- (ignoring the source) two reasons why Bismarck had earned this central position during the period leading up to the event pictured.

22. One component of Emperor Wilhelm II's Weltpolitik (world policy) was the acquisition of colonies for Germany. Explain why this was a contributing factor to the outbreak of World War I.

23. Many socialists supported their governments at the outbreak of World War I. Explain why many socialists opposed the war on principle, yet still supported their governments.

SOURCE 10

In April, 1915, medical student Robert Otto Marcus, a volunteer in the German army, wrote a letter to his parents from the front in France:

Yes, Father, I did receive your letter containing the newspaper clipping. Although the clipping about the possibility of obtaining leave to finish one's medical studies was very interesting, it did not take me long to reach a decision. Of course I would love to take the examination, that is not the problem. At least that way, my studies would be over and I would be done. But not now. The primary reason is this unbearable thought: I would be in Munich for 6 months, far away from war and danger, leaving my comrades in the field, ready to die for the fatherland at any moment. While I am sure that I would study hard and pass the examination, I also know that after all hardships of war, I would go and have some fun. (...) I would never be able to keep from thinking about the others, sacrificing themselves for me while I am enjoying myself, attending a coffee-time concert or going for a stroll in Partenkirchen. (...) In short: I would not be able to justify starting work for the examination and pursuing selfish pleasures to myself now of all times, even with the state's approval.

24. Use Source 10.

Robert Otto Marcus disagrees with his government about the best way in which he can serve the fatherland. List what this disagreement is, and explain that it is caused by the demands imposed on countries by modern warfare.

SOURCE 11

In January, 1916, student Johannes Haas, a volunteer in the German army, wrote the following from France:

Reinhold, one of the boys in my group, got a letter from his wife, in which she wrote that she has been forced to take all of their furniture to the pawnshop, except the beds. Of course, it surprises the officers that people have lost their drive. These "champagne and caviar" bastards are living high on the hog, while we are dying in the mud, getting 12 spoonfuls of waste marmalade and 14 sugar cubes for Christmas. That windbag Liebknecht is the only one for whom the soldiers have any sympathy and trust left. (...) That is the mood among the rank and file. Be sure to ignore the war correspondents and their nonsense.*

In spite of everything, I don't believe in the saying: "It isn't peace until we lay down the gun." But at some point, all hell will be unleashed. When that happens, those who have already died for the fatherland will be the lucky ones, because it will be worse than the war itself.

* Karl Liebknecht was the leader of the German communist Spartakusbund

25. Use Sources 10 and 11.

Suppose:

A historian uses these two letters to study the interaction between soldiers in the trenches and their home front. He observes that contact with the home front can affect soldiers' morale in different ways.

Use the two letters to explain on what this historian bases his observation.

26. Use Source 11.

Johannes Haas is pessimistic about the situation in Germany after the end of the war.

Explain:

- whether his prediction has come true, and
- what he suggests caused this situation.

SOURCE 12

A Russian poster from 1916, encouraging the population to buy war bonds.



Translation: Buy a war bond at five and a half percent interest; the greater the number of grenades, the more certain our victory.

Explanation: The building in the background is a weapons factory

27. Use Source 12.

Two statements:

1. This poster shows that the Russian government realizes the huge importance of the home front in a modern war.
2. As of early 1918, the distribution of this poster no longer fits the Russian government's policies.

Clarify both statements.

SOURCE 13

A cartoon by L.J. Jordaen from Dutch magazine "Het Leven" dated May 20, 1919



Caption: "Quiet, these are my fourteen points now. Understood?!"

Explanation: The person in the foreground on the left is US President Wilson; the one on the right is French President Clemenceau. The halo above the figure in the background reads "Pax" (= Peace).

28. Use Source 13.

With this cartoon, Jordaen gives his vision of the Versailles peace talks.

Explain: (using one element of the cartoon) what that vision is, and that Jordaen turned out to be right where the Peace of Versailles is concerned.

SWITZERLAND



PISA Rankings

2006			2003			2000		
MATH	SCIENCE	READING	MATH	SCIENCE	READING	MATH	SCIENCE	READING
6	16	14	9	12	13	8	18	17

Population size:	7,550,020
Student enrollment:	806,905 in 2006
U.S. states with similar statistics:	Colorado, Minnesota

General description of K–12 education:

Compulsory education includes primary and lower secondary education and spans nine years. The school year is at least 190 days long. Switzerland has no national standards or curriculum. Each canton (analogous to U.S. states) has its own minister of education and may institute standards and/or curriculum. Attempts are underway to harmonize teaching among the cantons in foreign languages, mathematics and science. Nationwide targets are to be set in certain subjects. There is no national system of assessment in Switzerland. However, there are nationally recognized study guidelines for the exams leading to the Maturität certificate (school-leaver certificate) and the DMS diploma (entrance into vocational education). Students seeking to attend college take the 'national' Swiss Matura examination.

Required subjects:

One national language (depending on the region, German, French, Italian or Romanic), mathematics, history and political science, geography, science, drawing and design, handicrafts, music, and sports.

EXCERPTS

The documents included for Switzerland are excerpts from study guidelines and school leaving exam for college-bound students obtained from the State Secretariat for Education and Research:

- History—grade 12
- Geography—grade 12

Note: These documents were translated into English from French.

SWITZERLAND

Excerpts

MATURA GUIDELINES

History and Geography • Grade 12

SWITZERLAND: TIME AND SPACE

<i>History</i>	<i>Geography</i>
<ul style="list-style-type: none"> ▪ From the Ancien Régime to 1848 up until Helvetica (Swiss Confederation) ▪ Rivalries and tensions in the establishment of the federal State ▪ History and political system of Switzerland in the 20th century 	<ul style="list-style-type: none"> ▪ Geology, resources and natural dangers ▪ Regional characteristics (physical, demographic, social and economic dimensions) ▪ Land management, 3 levels: confederation, cantons, communes

THE ROLE OF THE STATE IN THE ECONOMY AND SOCIETY

<i>History</i>	<i>Geography</i>
<p>Liberalism</p> <ul style="list-style-type: none"> ▪ Emergence ▪ Adam Smith ▪ Neo-liberalism (Reagan, Thatcher) 	<ul style="list-style-type: none"> ▪ Industrial and post-industrial poles ▪ Localization factors
<p>Interventionism</p> <ul style="list-style-type: none"> ▪ The stock market crash of 1929 ▪ Roosevelt's New Deal and the American model ▪ Totalitarian and fascist regimes ▪ The Marshall Plan and the "Trente Glorieuses" ("Glorious Thirty", 1945 – 75) 	<ul style="list-style-type: none"> ▪ Interdependence of economic spaces ▪ State tools for intervention in the economy ▪ Demographics and social policies (in Germany, in particular) ▪ Environmental problems and policies
<p>Statism</p> <ul style="list-style-type: none"> ▪ Socialism and Marxism ▪ Planning, concept and functioning ▪ Priority of industrialization ▪ Reforms: NEP, Khrushchev, Gorbachev ▪ Fall of the Soviet model 	<ul style="list-style-type: none"> ▪ Countries with economies in transition, passage from a planned economy to a market economy, to the example of the former Soviet Bloc countries ▪ Ecological heritage (influence of economic activities on the environment) ▪ Slicing and re-slicing of regions (historical, political, economic)
<ul style="list-style-type: none"> ▪ Clash between these views of the role of the State: the Cold War 	

GLOBALIZATION SINCE 1900	
<i>History</i>	<i>Geography</i>
<ul style="list-style-type: none"> ▪ Expansion of capitalism and imperialism: colonial empires ▪ Emergence of American dominance ▪ (rapid development since the end of the 19th century) ▪ Decolonization (process, consequences) ▪ UN, collective security system 	<ul style="list-style-type: none"> ▪ Endangered natural resources around the world ▪ Players and tools of globalization ▪ IMF, World Bank, WTO; multinationals, countries ▪ Global division of labor, North/South contrasts ▪ Migrations on a global scale
<ul style="list-style-type: none"> ▪ Globalization of the economy and the role of the Asian-Pacific region 	
EUROPE BETWEEN NATIONALISM AND INTEGRATION	
<ul style="list-style-type: none"> ▪ Triumphant nationalism and confrontations on the eve of 1914 ▪ Birth of new countries after 1919 (human rights, League of Nations) ▪ Association, integration of European countries since 1945 (EU) ▪ Exacerbation of nationalism, identity crises, minorities, clashes 	<ul style="list-style-type: none"> ▪ Geography of Europe: fundamental aspects (principal landscapes, climatic zones, population distribution, economic regions, communication channels) ▪ Political organization: borders and new countries
<ul style="list-style-type: none"> ▪ Regionalization in Europe (EU) 	

MATURA EXAMINATIONS

History

First and Second Parts: Knowledge and Comprehension

A. Turning Points

1. Check the period that corresponds with the American Revolution, first conflicts with England to the writing of the Constitution.

☐ 1724 – 1767 ☐ 1764 – 1787

☐ 1724 – 1776 ☐ 1820 – 1876

2. Describe and explain the system defined in the United States Constitution for balancing the power of the different states in the federal legislative branch.

3. Describe the main innovations in the area of ground transportation (before the automobile) and on water during the Industrial Revolution.

On ground:

On water:

B. Swiss History

4. Check the year in which the Sonderbund War took place.

☐ 1798 ☐ 1745

☐ 1847 ☐ 1815

5. Number and define the two opposing sides during the Sonderbund War. (Do not give the canton names.)

a)

b)

C. Civic Education

6a. Name the federal executive power.

6b. Describe how the federal executive power works.

7. Name the two current representatives (2007) of the federal executive power.

a)

b)

D. Triumphant Europe

8. Name two of the three military campaigns led by Germany to unify then explain the issues involved.

a)

b)

9. Name and comment on two reasons that pushed European powers to begin colonizing in the 19th century.

a)

b)

E. The century of ideological confrontations

10. Name, define and comment on the economic policy chosen by the Roosevelt Administration to fight the Depression in the United States in 1930.

11. Describe the military situation in France in the autumn of 1939 and the summer of 1940.

Autumn 1939:

Summer 1940:

Third Part: Essay question, document analysis

“WHEREAS the peace of the world and the security of the United States and of all American states are endangered by reason of the establishment by the Sino-Soviet powers of an offensive military capability in Cuba, including bases for ballistic missiles with a potential range covering most of North and South America;

WHEREAS [...] the United States is determined to prevent by whatever means may be necessary, including the use of arms, the Marxist-Leninist regime in Cuba from extending, by force or by the threat of force, its aggressive or subversive activities to any part of this hemisphere, and to prevent in Cuba the creation or use of an externally supported military capability endangering the security of the United States; [...]

Now, THEREFORE, I, JOHN F. KENNEDY, President of the United States of America, acting under and by virtue of the authority conferred upon me by the Constitution and statutes of the United States, [...] and to defend the security of the United States, do hereby proclaim that the forces under my command are ordered, beginning at 2:00 p.m. Greenwich time October 24, 1962, to interdict [...] the delivery of offensive weapons and associated materials to Cuba.”

Proclamation by President John F. Kennedy

October 23, 1962

Structure your work, making sure to:

- define the type of document (A)
- place the situation described by the document in its general and specific context (framework) (B)
- show the relevance of the document (analysis) (C)
- show the impact of the document (D)

A. Define the type of document to be analyzed.

B. Place the situation described by the document in its general and specific context (Framework).

C. Show the historical significance of the document by proposing a logically structured analysis (by structuring it according to the ideas or principal themes) of the text, avoiding a summary of it (Analysis).

D. Put the analyzed document in perspective in terms of international relations. (Impact)

Geography

First Part: Knowledge Assessment

Respond to each statement with true (T) or false (F)

- 1.1 The earth as an element of the solar system
 - ___ Equinoxes take place in the months of September and March
 - ___ The Tropic of Capricorn is located in the northern hemisphere
 - ___ The midnight sun is visible one day a year in the polar circle and lasts 6 months on the pole
 - ___ The rotation of the earth takes 365 days and 6 hours
- 1.2 Structure of the earth
 - ___ The crust as well as the upper part of the upper mantle forms the lithosphere
 - ___ The oceanic crust is thicker than the continental crust
 - ___ Subduction zones are plate convergence zones
 - ___ All accretion zones are at the bottom of the ocean
- 1.3 Climates, natural environments
 - ___ Atmospheric pressure increases with altitude
 - ___ Oxygen is the main gaseous component of air at low altitudes
 - ___ Meteorological phenomena occur in the troposphere
 - ___ More than 80% of clouds are formed above seas and oceans
- 1.4 Population, habitat, economy
 - ___ The global urbanization rate exceeds 50%
 - ___ A megalopolis contains more than 8 million inhabitants
 - ___ The “construction” industry is part of the service sector
 - ___ Fallow refers to feed crops for livestock
- 1.5 Transport and energy
 - ___ Wood is considered a renewable energy
 - ___ Natural gas is a hydrocarbon
 - ___ Middle East countries have the largest oil reserves in the world
 - ___ Nuclear power plants were first built in the middle of the 20th c.

Second Part: Comprehension and Application

2.1 Earthquakes

a) Define the notion of magnitude.

b) Define the notion of intensity.

c) List four elements that influence the intensity of an earthquake.

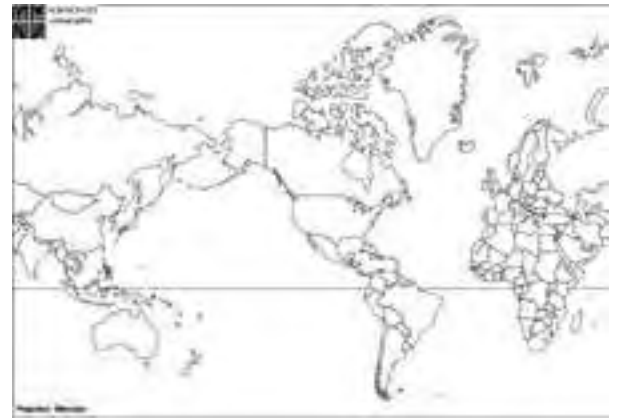
1.

2.

3.

4.

d) Using the atlas, draw on the map below the largest seismic areas on earth.



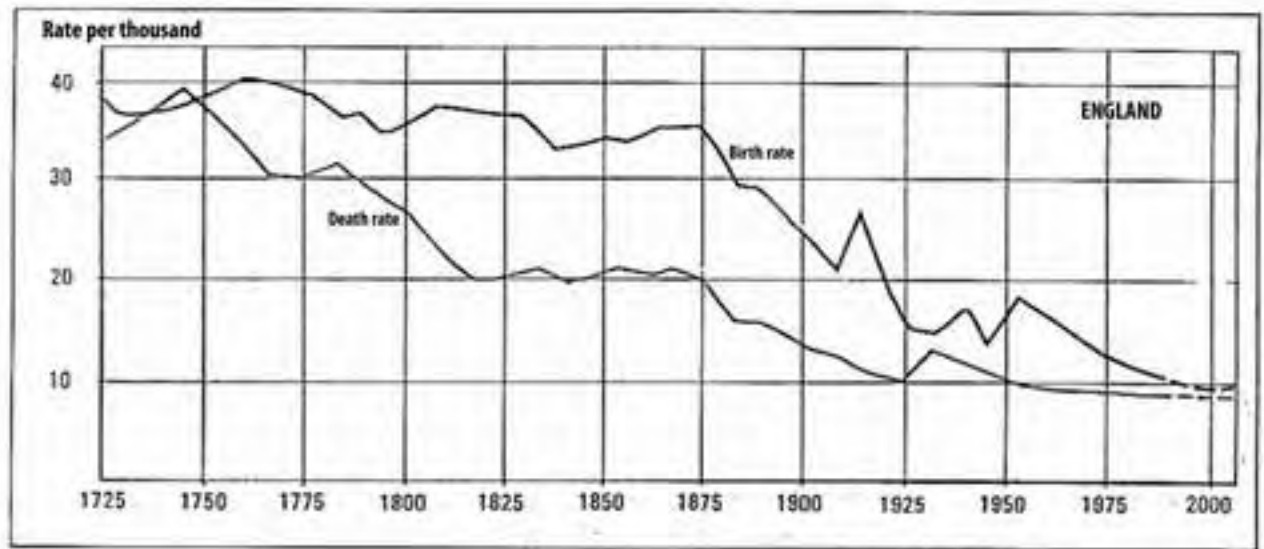
2.2 Demographic Transition

a) Name the phenomenon that is the subject of the document below.

b) Break this phenomenon down into 4 steps (draw the steps on the graph itself), describe and explain briefly what happens at each stage.

c) In which region of the world did this phenomenon begin? During which period? What are its causes? Explain.

d) What are the fundamental differences between this phenomenon in developed countries and the phenomenon in developing countries in terms of time, speed and the intensity of the phenomenon?



e) Define natural population growth and explain its evolution with regard to the graph above.

f) What was the natural population growth in England (see graph above):

- In 1850?
- In 1975?

Third Part: Essay

3.1 Fertility in Switzerland

a) Present four possible causes for the decrease in fertility in Switzerland since the 1970s.

1. _____
2. _____
3. _____
4. _____

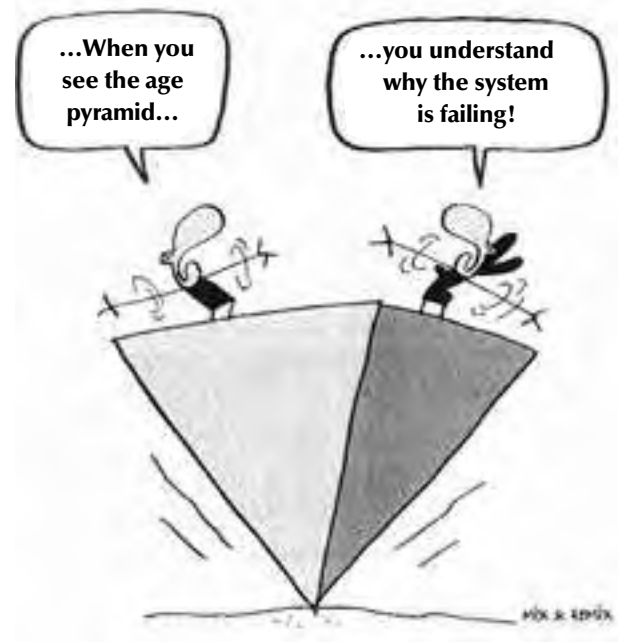
b) Present four direct or indirect consequences of the decrease in fertility in Switzerland.

1. _____
2. _____
3. _____
4. _____

c) Propose four solutions to increase the birth rate in Switzerland.

1. _____
2. _____
3. _____
4. _____

d) Describe and comment on the cartoon below.



Comprehensive Education Outside the United States

EDUARDO ANDERE

THE PERCEPTION THAT THE U.S. is behind other industrialized nations when it comes to K–12 education stems in large part from U.S. performance on international standardized comparison tests including the Progress in International Reading Study (PIRLS), Trends in International Mathematics and Science Study (TIMSS), and Program for International Student Assessment (PISA). Recently this impression is buttressed by discussion around the reauthorization of the No Child Left Behind Act (NCLB), by the policy debates of the 2008 presidential candidates, and by President Obama's education agenda.¹

U.S. performance under PIRLS and TIMSS² has not always been low.³ However, it has rarely been strong and never very strong, especially in the upper grades. Comparative performance of U.S. eighth graders in science has been consistently lower than their elementary school peers' results as shown by the TIMSS' performance in science in 1995, 1999, 2003 and 2007. Results have been even lower for math, where the U.S. has scored at or around the TIMSS average score, on TIMSS 1995, 1999, 2003, and 2007. International comparisons carried out under the auspices of IEA since 1960 to the early 1990s and known as FIMS, FISS, SISS⁴ were even more disappointing.

The most discouraging results have been in the three rounds of PISA, where U.S. performance has been consistently low and at or below the Organisation for Economic Cooperation and Development (OECD) mean score, and well below the highest level of attainment of high performers. However, it is important to be cautious when construing the results from international comparisons. There are methodological issues that should be considered.⁵

In 2006, U.S. students performed below the OECD's average value for PISA Science and Mathematics, placing the U.S. 25th in science and 26th in mathematics among the 30 OECD's members.⁶ In contrast with IEA's international studies where students are sampled at a given grade level, PISA's sample is based on students'

age, i.e. from 15 to 16 years old⁷. For the U.S. this means that most of the sampled students are enrolled in grades 10 and 11, whereas Finnish students sampled for PISA are all enrolled in grade 9 or below (lower secondary school). This did not bode well for the U.S. in that Finnish students were outperforming them even with a year less schooling. An additional blow came with the publication of an U.S. government-sponsored report highlighting PISA as a very rigorous and more difficult test than NAEP and TIMSS-R.⁸

As summarized by Gene V. Glass, the call for reform is not new:

Reforming the public elementary and secondary schools of America is not a new endeavor. Those who come late to an interest in the education of children may think that serious discussion of reforming schools began with No Child Left Behind, or at least not before *A Nation at Risk* in 1983. In fact, debates about reforming schools are as old as public education itself.⁹

Significant attempts to overhaul the U.S. education system have been unsuccessful, as a U.S. government study acknowledges:

Federal policy has had a significant impact on America's schools and children ever since ESEA was enacted in 1965. Yet, despite hundreds of programs and hundreds of billions of dollars invested during the last generation, American students still lag behind many of their fellow foreign students and the academic achievement gap in this country between rich and poor, white and minority students, remains wide.¹⁰

The modern age of school reform in the U.S. began as a response to *A Nation at Risk* report in 1983. The Reagan administration reacted with the promise of less government intervention and a school education reform agenda aligned to U.S. economic growth and competitiveness. During the 1990s, an assessment and accountability policy based on results was bolstered by the George H. W. Bush administration. In 1991,

the National Council on Education Standards and Testing was established, and together with the National Education Goals Panel, created in 1990, helped to initiate a shift toward standards, testing, and accountability. The Clinton administration continued and broadened the trend and scope of standards and accountability epitomized in the Goals 2000 National Educate America Act. Then, in 2002, George W. Bush's No Child Left Behind Act became law. NCLB is based on four principles:

(...) stronger accountability for results; greater flexibility for states, school districts and schools in the use of federal funds; more choices for parents of children from disadvantaged backgrounds; and an emphasis on teaching methods that have been demonstrated to work.¹¹

Disappointments and frustrations have been heightened over the years by the fact that U.S. per student expenditure remains very high. A recent OECD comparative analysis of education expenditures shows that the U.S. ranks first among the OECD and partner countries in expenditures per student at the pre-school level; third at the primary or elementary level; second at the lower-secondary level and fourth at the upper secondary level.¹² This denotes the U.S. productivity level under PISA as one of the lowest in the world as shown in Graph 1.¹³

One way of reading Graph 1 is by asking how much does a PISA point cost. For the U.S. the cost is \$80.6¹⁵ compared to an OECD average of \$60.1. Of course, one might not care about the cost of learning if performance was high or very high. But if cost is high and performance is low, there are points of concern. This seems to be,

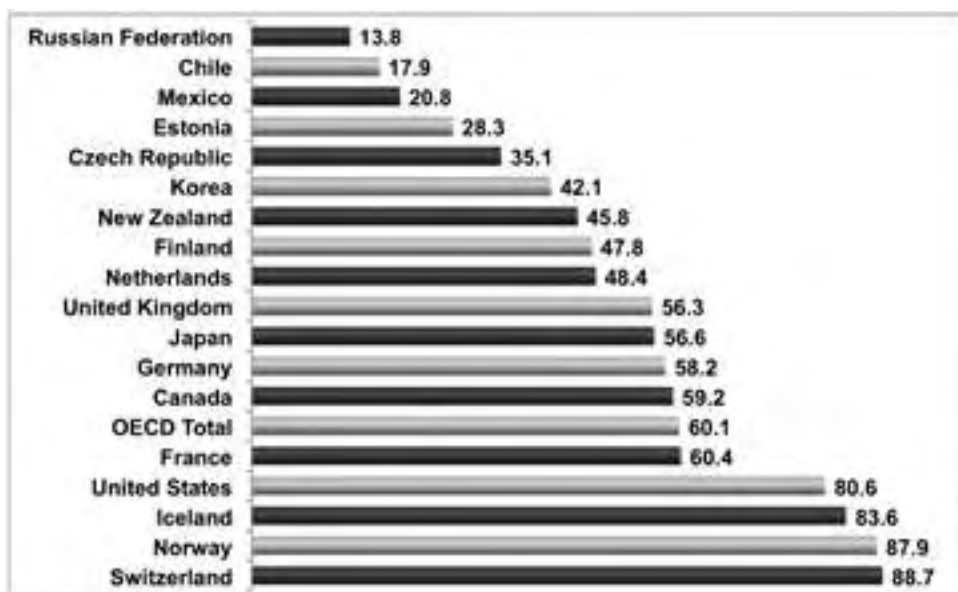
unfortunately, the situation for the U.S. On the other end of the spectrum, countries like Korea, New Zealand, Finland, and the Netherlands show relatively high performance marks and very high performance levels. This is, indeed, a very good public policy outcome for these nations.

Coupled with the factors mentioned above, there is also the challenge of comparing the U.S. education system to that of other nations. The U.S. has, probably, the most complex education system in the world. It is very large, decentralized, and asymmetrically fragmented¹⁶, with education authority split among many different players, including the federal government, state governments, and local school boards under varying leadership including commissioners, chancellors, secretaries or even mayors. There is no simple way to frame a unit of analysis to compare the U.S. to other education systems, particularly when we try to infer about processes or to explain about successes and failures based on a cause-effect relationship.¹⁷ Nevertheless, the complexity of making comparisons must not prevent us from tapping this valuable resource. One way of doing this is to look at documents such as national standards and assessments in high performing education systems to see whether the content of education they deliver differs from that offered in lower performing nations, such as the United States.

Five years ago, I commenced an ambitious education project. I packed my things and traveled around the world in search of the education Shangri-la. In the end, instead of explaining the intricacies of an ideal model, I ended up explaining why there is no such ideal. Nevertheless, it was a valuable experience, as I learned

Graph 1.

Student performance and cumulative expenditures per student/ PISA 2006 score points¹⁴



much about global education and cultural differences.

High performing nations, such as Finland, have a comprehensive approach to educational content but lack a system of national assessments attached to accountability. In no high performing nation that I examined¹⁸ are schools closed, restructured, or are teachers fired or removed based on students' performance on universal standardized assessments. I also found that in countries with tracking systems, such as Singapore, Germany, and Switzerland, the curriculum for the non-academic track is still very broad and comprehensive.

I also learned that nearly all high performing countries such as Finland, New Zealand, Ireland, England, Scotland, Hong Kong, and Singapore do have national secondary school (high school) exit or qualification exams, wherein students show their aptitude in both

*...many high performing countries
take a more balanced and comprehensive
curriculum approach to learning than
does the U.S.*

required and self-selected subjects. In my discussions with teachers, I found that they seemed to be more concerned with teaching and learning rather than their student's performance on standardized national benchmarks. While student performance on tests is important for these high performing schools, it is not a fixation, and performance is measured in numerous ways.

In sharp contrast, the U.S., as shown by the history of education reform, is obsessed with assessments and accountability. The New York City and Washington, D.C. school districts are prominent examples of this trend. While the U.S. focuses excessively on test results and accountability, other high performing countries exhibit more devotion to issues including comprehensive, knowledge-based curriculum; teaching strategies; learning environments; professional development; exit or qualification exams; and opportunities for teacher collaboration.

Again, the complexity of the U.S. school education system does not make it easy to compare directly what is taught in the U.S. to the core curriculums of high performance nations. Finland, Hong Kong, Korea, Sweden, Scotland, New Zealand, Singapore, and Flanders have national curriculums or frameworks. This is true for secondary schools and for primary schools as reported by PIRLS: "Nearly all countries have a national curriculum that covers reading instruction at the fourth grade."¹⁹ The exceptions in the PIRLS sample are Canada, Germany, and the United States.

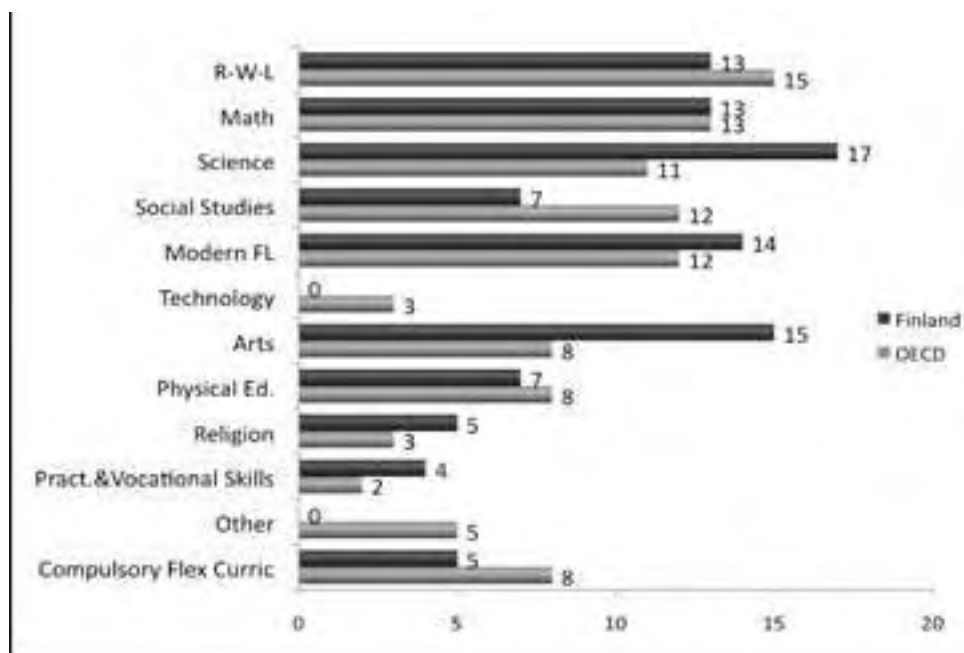
Although decentralized systems like Australia, Switzerland, and Canada do not have, by definition, a national curriculum, they have made, and are still making efforts through intergovernmental organizations composed of representatives from state or provincial governments to agree on basic policy issues, including the creation of some core or central curriculum recommendations. The Swiss cantons are organized, for educational purposes, under the Swiss Conference of Cantonal Ministers of Education (EDK)²⁰. Some of the understandings of EDK are legally binding and are known as "concordants."

Similarly, Canada has a confederation of education ministers known as Council of Ministers of Education Canada (CMEC),²¹ which brings together the 10 provinces and three territories on common issues of education policy, initiatives and goals. The Australians have the Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA).²² MCEETYA is an inter-governmental body comprised of the six states and two territories of Australia, plus the government of Australia and the New Zealand's ministers of Education and Social Development. Pacific Island (Papua New Guinea, Norfolk Island and East Timor) ministers of education and labor take part in MCEETYA as observers.

Because the U.S. does not have a centralized system, it is challenging to compare and analyze common policies, curriculum, and goals. When one looks at the comparative statistics compiled by international organizations or associations such as the OECD or the IEA, data from the U.S. is missing in many indicators of curriculum comparisons. And while policymakers everywhere are preoccupied by the menaces of a competitive and global world, this is especially true in the United States. For decades, education systems, authorities, and analysts have warned about the poor performance of students and school systems in relation to specific outcomes and challenges. The U.S. response has been a compulsory assessment in numeracy and literacy. But such a focus has not proven to be enough. It appears that many high performing countries take a more balanced and comprehensive curriculum approach to learning than does the U.S.

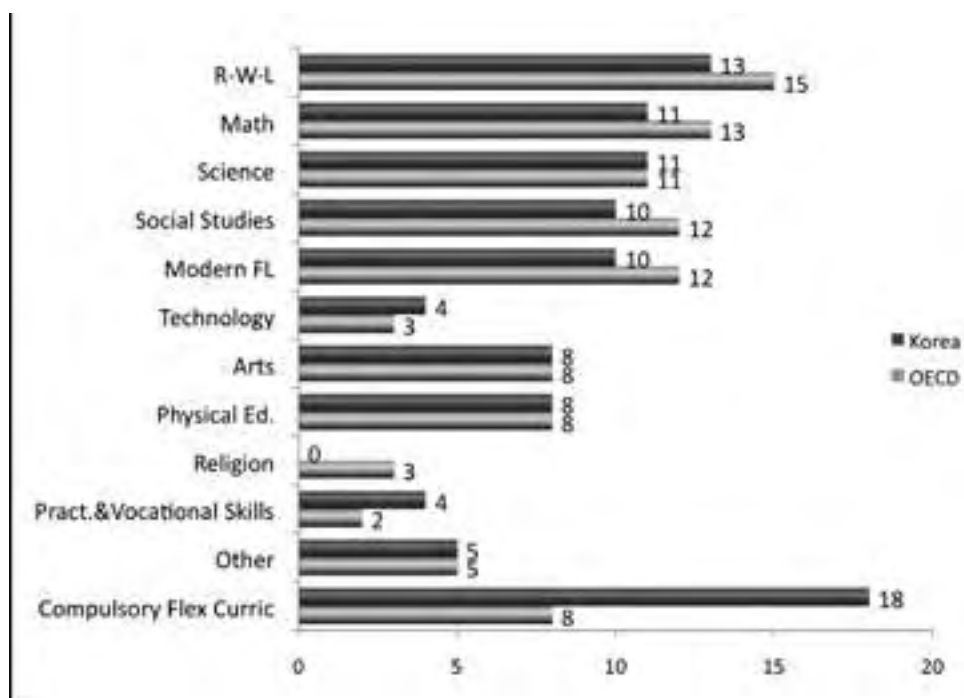
Look at Finland's compulsory distribution of instructional time per subject. Graph 2 shows the number of hours of compulsory instruction divided by subjects. Note that Finland tends to have a more balanced and comprehensive and less skewed curriculum than the OECD's average. In numeracy and literacy, Finland has a slightly less concentrated curriculum for children aged 12–14 than the OECD's average of 26 percent versus 28 percent. Conversely, Finland emphasizes science, art, and vocational or practical subjects more than the OECD's average (Graph 2).

Technology, per se, is not taught in Finland, and arts education (divided into music, visual arts and crafts in



Graph 2.

Instruction time per subject as a percentage of total compulsory instruction time for 12 to 14 years old (2006): Finland and OECD



Graph 3.

Instruction time per subject as a percentage of total compulsory instruction time for 12 to 14 year-olds (2006): Korea and OECD

the comprehensive schools) is given almost twice the level of importance as in the OECD average (15 per cent versus 8 per cent). In contrast, social studies comprises only a 7 percent share in Finland compared to a 12 percent share at the OECD's level. Practical and vocational training is given twice as many hours of instruction in Finland as those devoted in the theoretical OECD's average. The U.S. data is missing in the OECD's calculations, so a direct comparison with a U.S. curriculum is not possible.

Korea, another very high performing country, shows an even more balanced curriculum, seeming to be less concentrated in numeracy and literacy (24 percent) than Finland at 26 percent. Further, the time allocation for subjects, as seen in Graph 3, is also more balanced across such subjects as reading, mathematics, science, social

... high performing countries seem to devote significant effort and resources to maintain a broad, comprehensive core curriculum.

studies, modern languages, arts and physical education.

There are some hints about the U.S. curricular concentration in surveys to principals conducted under IEA's PIRLS and TIMSS. Looking at PIRLS for instance, there seems to be an over-concentration in numeracy and literacy in U.S. schools for fourth graders. The total average number of implemented instructional hours overall in the U.S. is 30 hours per week for fourth graders compared to 23 hours for the PIRLS' international average. The U.S. is surpassed only by Indonesia with 31 hours. Of this total, 60 percent is devoted to language and reading in the U.S. compared to 50 percent for the international average. Furthermore, 68 percent of U.S. fourth graders are reportedly taught reading more than six hours per week. Hong Kong, the second highest performing country in PIRLS 2006, reported spending only five percent of instructional time on reading.

In mathematics, the story is similar for fourth graders. The total average number of intended instructional hours in mathematics per week in the U.S. is 32 compared to 23 hours for the TIMSS' international average. The U.S. is tied only by Algeria. Again, Hong Kong one of the highest performing countries on TIMSS, devotes only 23 intended hours to mathematics, leaving more room for other subject areas. This also appears to be true with Finland, as shown by the OECD's above-mentioned comparisons.

For eighth graders the concentration story irons out to 29 hours per week for the U.S. vis-à-vis 27 hours at the international average level. The three highest performing countries in math for eighth graders, Chinese Taipei,

Korea, and Singapore, show a lower number of intended mathematics hours, i.e., 25, 26, and 23 respectively. Much more information about curriculums, time allocation, and timetables is needed. In the end what actually happens inside the classroom, i.e., quality of teaching and school ethos, is much more important than the number of hours students spend in class or in school. But, with other factors remaining constant, high performing countries seem to devote significant effort and resources to maintaining a broad, comprehensive core curriculum.

The comparisons above serve as an indicator of a broad common comprehensive curriculum for OECD's and IEA's countries and more conspicuously for Finland in PISA, Hong Kong and Russian Federation for PIRLS, and Chinese Taipei, Hong Kong, Korea and Singapore for TIMSS in math. I am not implying at all that the allocation of hours is the ultimate explanation for education success. I am only suggesting that these high performing countries do seem to favor comprehensive core curriculums.

As I mentioned before, it is important to be cautious when making these comparisons; there are methodological questions that can be raised when comparing education systems. There are even questions that have been raised about comparisons based on the national standards and tests. In any case, data that comes from a variety of sources and methodologies are only inputs and up for interpretation by policy makers who draw upon them to make decisions. It is difficult to paint a precise international comparative picture when we are all forced to use thick, broad brushes.

If we continue to grow and reform our education systems based on the idea that we must beat competitors in order to survive in a more complex, global and critical-thinking world, we are educating our children based on wrong assumptions. Can we all succeed in a global world? Not if we design our education system based purely on competition. For every winner there are many losers. The Finnish, Swedish, Chinese, Singaporeans, Koreans, Australians, New Zealanders, English, Scottish, Chilean and Mexicans, etc., are all trying to do the same: beat competitors.

There has been an epidemic traveling the world to favor standards and accountability over ensuring all children receive a comprehensive, content-rich curriculum. Some systems have resisted (Finland and Scotland for instance) others have yielded (Australia, England and the U.S., Chile, and Mexico). And yet, my understanding is that accountability attached to national standardized assessments has not really spread around the world despite the OECD's view.²³ High performing countries rely more on students' learning from a networked system of broad and coherent core and co-core curricular schemes plus national exit or qualification exams than on a narrow view of education where the measure of outcomes is

based only on standardized, high stakes tests.

The best strategy under competitive conditions is to concentrate on a broad, learning-centered curriculum based on a core comprehensive knowledge-based content where the only aim is to develop the full potential of students, rather than to appease the aims of politicians. As per the evidence used above, and as suggested by the curriculum and assessment excerpts included in this report, high performing education systems, and the schools within them, are taking a broad holistic approach to education. U.S. federal, state, and local education policymakers can learn much from the practices of the high-performing countries included in this report.

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ENDNOTES

Letter From The Executive Director

1 A few notes on PISA and our list of nations: We chose PISA because when we began our research the 2006 PISA results were the most recent international comparison data available. Taiwan ranked first on the 2006 math PISA exam and 4th in science. Estonia also outranked the US at 6th in science and 14th in math. But since we were looking for a track record of outranking the US, and 2006 was both nations' first year taking the test, they were excluded. Macao-China, the United Kingdom, and Belgium have outperformed the US on PISA but their performance and participation were too erratic to warrant inclusion.

2 CIA Factbook (May 14, 2009).

High Achieving Countries Don't Narrow by Martin West

1 Of the various international testing programs in which the United States participates, the PISA is notable because it is administered by the Organisation of Economic Cooperation and Development (OECD) and therefore includes most of our major trading partners and chief economic competitors.

2 Due to sampling error, the OECD reports a range of plausible rankings for each country. For the U.S., these range from 18th to 25th in science and 24th to 26th in math. Organisation for Economic Co-operation and Development, *The Programme for International Student Assessment (PISA)*, Paris: OECD (2007).

3 Ina M.S. Mullis, Michael O'Martin, and Pierre Foy, *TIMSS 2007 International Mathematics Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades*, TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College (2008); Ina M.S. Mullis, Michael O'Martin, and Pierre Foy, *TIMSS 2007 International Science Report: Findings from IEA's Trends in International Mathematics and Science Study at the Fourth and Eighth Grades*, TIMSS & PIRLS International Study Center, Lynch School of Education, Boston College (2008).

4 Organisation for Economic Co-operation and Development, *PISA 2006: Science Competencies for Tomorrow's World, Volume I: Analysis*, Paris: OECD (2007).

5 Eric A. Hanushek and Ludger Woessmann, "The Role of Cognitive Skills in Economic Development," *Journal of Economic Literature*, vol 46, no. 3 (2008), pp. 607–668; Eric A. Hanushek, Dean T. Jamison, Eliot A. Jamison, and Ludger Woessmann, "Education and Economic Growth," *Education Next*, vol. 8, no 2 (Spring 2008), pp. 62–70.

6 The size of the relationship suggests that boosting performance by half a standard deviation over a 20-year span would increase real GDP by 36 percent over a 75 year horizon. The initial benefits

would be more limited, of course, because it takes a long time before students who have attended the reformed school system replace the total labor force.

7 For a summary of existing international evidence and new analyses based on the PISA 2003 results, see Ludger Woessmann, Elke Luedemann, Gabriella Schuetz, and Martin West, *School Accountability, Autonomy, and Choice around the World* (Edwin Elgar, 2009).

8 On the politics of test-based accountability, see Patrick J. McGuinn, *No Child Left Behind and the Transformation of Federal Education Policy: 1965–2005* (University Press of Kansas, 2006).

9 Eric A. Hanushek and Margaret E. Raymond, "Does School Accountability Lead to Improved Student Performance?" *Journal of Policy Analysis and Management*, Vol. 24, No. 2 (2005), pp. 297–327; Martin Carnoy and Susannah Loeb, "Does External Accountability Affect Student Outcomes?" *Educational Evaluation and Policy Analysis*, Vol. 24, No. 4 (Winter 2002), pp. 305–331.

10 See, e.g., Sam Dillon, "Schools Cut Back Subjects to Push Reading and Math," *New York Times*, March 26, 2006, p. A1.

11 Center on Education Policy, "Instructional Time in Elementary Schools: A Closer Look at Changes in Specific Subjects" (CEP, 2008).

12 Data from the latest SASS Survey, gathered during the 2007–08 school year and scheduled for release later in 2009 will shed light on this issue.

The Case for Content Specificity by Sheila Byrd Carmichael

1 The Thomas B. Fordham Institute, *The State of State Standards 2006*, p. 12 (available at: <http://edexcellence.net/doc/State%20of%20State%20Standards2006FINAL.pdf>).

2 Massachusetts Department of Education: <http://www.doe.mass.edu/boe/docs/1008/item1.html>

3 Massachusetts Department of Education: <http://www.doe.mass.edu/news/news.asp?id=4457>

4 *Benchmarking for Success: Ensuring U.S. Students Receive a World-Class Education*, available at: <http://www.nga.org/Files/pdf/0812BENCHMARKING.PDF>

5 E.D. Hirsch, "The Case for Bringing Content into the Language Arts Block and for a Knowledge-Rich Curriculum Core for all Children," *Teacher Magazine*, Spring 2006; Daniel T. Willingham, "How Knowledge Helps: It Speeds and Strengthens Reading Comprehension, Learning—and Thinking," *Teacher Magazine*, Spring 2006. Both articles are available at: http://www.aft.org/pubs-reports/american_educator/issues/spring06/index.htm

6 The word "standards" is used throughout this essay to denote

ENDNOTES

specific academic benchmarks, though each country may use different labels for the benchmarks.

7 New Jersey Department of Education: http://education.state.nj.us/cccs/?_list_cpi;c=5;s=6;g=8

8 “Language Arts Item Sampler” available at: http://www.tennessee.gov/education/assessment/sec_samplers.shtml

9 “California High School Exit Examination” available at: <http://www.cde.ca.gov/ta/tg/hs/documents/ela08rtq.pdf>

10 Education Commission of the States: <http://mb2.ecs.org/reports/Report.aspx?id=905>

11 Music and the Brain: http://www.musicandthebrain.org/research_papers.htm

Comprehensive Education Outside the United States by Eduardo Andere

1 Obama, Barack. 2009. Remarks of President Barack Obama: A Complete and Competitive American Education. US Hispanic Chamber of Commerce. The White House, Office of the Press Secretary. March 10. Retrieved on April 15, 2009 from http://www.whitehouse.gov/the_press_office/Remarks-of-President-Barack-Obama-A-Complete-and-Competitive-American-Education-US-Hispanic-Chamber-of-Commerce

2 Both of these tests under the auspices of the International Association for the Evaluation of Educational Achievement (IEA) are for primary school children (4th grade)

3 Koretz 2008.

4 FIMS, FISS and SISS stand for first and second studies in math and science.

5 See, for example: Andere, Eduardo. 2008. *The Lending Power of PISA: League tables and best practice in international education*. CERC Monograph Series in Comparative and International Education and Development No. 6. Hong Kong: Comparative Education Research Centre. Glass, Gene. V. 2008. *Fertilizers, Pills, and Magnetic Strips: The Fate of Public Education in America*. Charlotte, North Carolina: Information Age Publishing. Hopmann, S.T. and G. Brinek, G. 2007. Introduction. In *PISA According to PISA: Does PISA Keep What It Promises*, ed. S.T. Hopmann, G. Brinek, and M. Retzl, 9-19. Vienna and Berlin: Lit Verlag. Koretz 2008. Loveless, Tom. 2009. *How Well are American Students Learning? The 2008 Brown Center Report on American Education: With Sections on International Assessments, the Misplaced Math Student, and Urban Schools*. The Brown Center on Education Policy. Vol. II, Num. 3. Washington, D.C.: The Brookings Institution.

6 We need to know if this cite is from 2007a or 2007b (or both): pages 58 and 318 are cited.

7 15 years and three months to 16 years and two months old, to be precise.

8 U.S. Department of Education, National Center for Education Statistics. 2001. *A Comparison of the National Assessment of Educational Progress (NAEP), the Third International Mathematics and Science Study Repeat (TIMSS-R), and the Programme for International Student Assessment (PISA)*, NCES 2001-07, by David

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10 U.S. Department of Education, Office of Elementary and Secondary Education. 2002. *No Child Left Behind: A Desktop Reference*. Washington, D.C.: Author. Retrieved on February 9, 2009 from <http://www.ed.gov/admins/lead/account/nclbreference/reference.pdf>. 9.

11 Ibid.

12 Organisation for Economic Development Co-Operation and Development. 2008. *Education at a Glance 2008: OECD Indicators*. Paris: Author. 218.

13 See: Organisation for Economic Co-Operation and Development. 2008. *Education at a Glance 2008: OECD Indicators*. Paris: Author. 221; Organisation for Economic Co-Operation and Development. 2007a. *PISA 2006: Science Competencies for Tomorrow's World. Volume I: Analysis*. Paris: Author. 58, 298, and 318; and Organisation for Economic Co-Operation and Development. 2007b. *PISA 2006: Science Competencies for Tomorrow's World. Volume II: Data*. Paris: Author. 27, 225, and 230.

14 A PISA score represents the correct answers to many different items (questions). Scores assigned to students, in each domain (reading, math and science) are constructed or scaled “to have a mean score among OECD countries of 500 points, with about two-thirds of students across OECD countries scoring between 400 and 600 points.” (OECD 2007a, 42). Mean scores per country can be easily compared to the mean OECD scores.

15 Dollars based on a purchasing power parity (PPP) calculation.

16 Six per cent of school districts serve 52 percent of all students, and 70 per cent of districts contain 17 per cent of them (Kennedy et al. 2007, 422)

17 See Andere, Eduardo. 2008. *The Lending Power of PISA: League Tables and Best Practice in International Education*. CERC Monograph Series in Comparative and International Education and Development No. 6. Hong Kong: Comparative Education Research Centre.

18 Finland, Sweden, France, England, Scotland, Ireland, Flanders, Czech Republic, Switzerland, Hong Kong, Singapore, Korea, Japan, Australia, New Zealand and Canada.

19 There are 40 countries in PIRLS 2006. The U.S. is one of them (Mullis et al. 2007, 16 and 22).

20 Swiss Conference of Cantonal Ministers of Education: <http://www.edk.ch/dyn/11553.php>

21 Council of Ministers of Education, Canada: <http://www.cmec.ca/index.en.html>

22 Ministerial Council on Education, Employment, Training and Youth Affairs: <http://www.mceetya.edu.au/mceetya/>

23 See OECD 2007a, 237.

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Satoshi Nara (personal communication, November 21, 2008)

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National Curriculum Board: <http://www.ncb.org.au/default.asp>
(Australia): <http://www.inca.org.uk/australia.html>

Netherlands

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