PERFORMANCE STANDARDS

Volume 1 Elementary School

NEW STANDARDS™

English Language Arts

Mathematics

Science

Applied Learning

PERFORMANCE STANDARDS

Volume 1 Elementary School

NEW STANDARDS™

English Language Arts

Mathematics

Science

Applied Learning

Support for the development of the New Standards performance standards was provided by:

The Pew Charitable Trusts,
John D. and Catherine T. MacArthur Foundation,
William T. Grant Foundation,
and the
New Standards partners.

Reprinted 1998

Designed by Harcourt Brace Educational Measurement.

Printed in the United States of America.

ISBN 1-889630-51-9

TABLE OF CONTENTS

INTRODUCTION

ABOUT NEW STANDARDS

New Standards is a joint project of the Learning Research and Development Center (LRDC) at the University of Pittsburgh and the National Center on Education and the Economy (NCEE). Since it began in 1991, New Standards has led the nation in standards-based reform efforts. Heading a consortium of 26 states and six school districts, New Standards developed the *New Standards™ Performance Standards*, a set of internationally competitive performance standards in English language arts, mathematics, science and applied learning at the 4th, 8th and 10th grade levels.

New Standards also pioneered standards-based performance assessment, developing the *New Standards™ Reference Examinations* and a portfolio assessment system to measure student achievement against the performance standards.

New Standards was founded by Lauren Resnick, Director of the Learning Research and Development Center , and Marc Tucker, President of the National Center on Education and the Economy. Its Governing Board, during the initial years, included chief state school officers, governors and their representatives, and others representing the diversity of the partnership, whose jurisdictions accounted for nearly half the nation's student population.

Today the New Standards program, led by Phil Daro, is managed by the NCEE. The research and development team is located in the Office of the President of the University of California and in the NCEE branch office in Fort Worth, Texas. Other New Standards staff members are based at the LRDC and the NCEE as well as the American Association for the Advancement of Science, the National Council of Teachers of English, and the University of California Office of the President. Technical studies are based at the LRDC and Northwestern University, with an advisory committee of leading psychometricians from across the nation.

The **performance standards** are derived from the national content standards developed by professional organizations, e.g., the National Council of Teachers of Mathematics, and consist of two parts:

Performance descriptions—descriptions of what students should know and the ways they should demonstrate the knowledge and skills they have acquired in the four areas assessed by New Standards—English Language arts, mathematics, science, and applied learning—at elementary, middle, and high school levels.

Work samples and commentaries—samples of student work that illustrate standard-setting performances, each accompanied by commentary that shows how the performance descriptions are reflected in the work sample.

The performance standards were endorsed unanimously by the New Standards Governing Board in June 1996 as the basis for the New Standards assessment system—consisting of an on-demand examination and a portfolio system.

The on-demand examination, called the **reference examination** because it provides a point of reference to national standards, is currently available in English language arts and mathematics at grade levels 4, 8, and 10. It assesses those aspects of the performance standards that can be assessed in a limited time frame under standardized conditions. In English language arts, this means reading short passages and answering questions, writing first drafts and editing. In mathematics, this means short exercises or problems that take 5 to 15 minutes, and longer problems that take up to 45 minutes. The reference examination stops short of being able to accommodate longer pieces of work—reading several books, writing with revision, conducting investigations in mathematics and science and completing projects in applied learning—that are required by New Standards performance standards and by the national content standards from which they are derived.

The **portfolio system** complements the reference examination. It provides evidence of the achievement of the performance standards that depend on extended pieces of work (especially those that show revision) and accumulation of evidence over time. During development, 3,000 teachers and almost 60,000 students participated in a field trial of the portfolio system.

The New Standards Portfolio Systems is available in English language arts, mathematics and science at the elementary, middle and high school levels.

The portfolio system includes:

- A black-line master book with teacher and student instructions and masters of all the entry slips that are needed for students to identify their work, samples of student work and scoring profiles.
- Student accordion folders with legal-size folders for each of the exhibits required by the New Standards Portfolio System. Instructions for assembling exhibits are printed directly on the folders so that links to the performance standards are easily seen.

PRIMARY LITERACY STANDARDS

In 1999 New Standards developed **primary literacy standards**, released in 1999 under the title *Reading and Writing Grade by Grade*. Teachers and schools across the country had expressed a need for more guidance on what learning is needed by students before they enter 4th grade, particularly in the critical area of literacy. At the same time, the nation, as seen in statements by the President and many governors, voiced a new commitment to ensuring that all children learn to read by the end of 3rd grade. New Standards responded by bringing together 22 of the nation's top experts on literacy including some of the best-known advocates of the phonics approach as well as the whole-language approach. Five of them had served on the National Research Council's Committee on the Prevention of Reading Difficulties in Young Children, which published an influential report on early literacy in 1998.

The New Standards Primary Literacy Standards offer a unique set of grade-by-grade expectations in reading and writing for students in kindergarten through 3rd grade. They state what primary-grades students should know and be able to do, and how well they should be able to perform. They offer examples of that student performance taken from real classrooms. The Primary Literacy Standards challenge traditional classroom practice by giving equal weight to the teaching of reading and writing, linking the skills in one to skills in the other.

The New Standards Primary Literacy Standards give teachers and parents examples of the kind of reading and writing that children should be able to do in kindergarten through 3rd grade. Drawn from real classrooms, these work samples include a CD-ROM of recordings of children reading specially identified books that allow adults to rate student progress against the standards.

ABOUT THE PERFORMANCE STANDARDS

We have adopted the distinction between content standards and performance standards that is articulated in *Promises to Keep: Creating High Standards for American Students* (1993), a report commissioned by the National Education Goals Panel. Content standards specify "what students should know and be able to do"; performance standards go the next step to specify "how good is good enough."

These standards are designed to make content standards operational by answering the question: how good is good enough?

Where do the performance standards come from?

These performance standards are built directly upon the consensus content standards developed by the national professional organizations for the disciplines. The Mathematics performance standards are based directly on the content standards produced by the National Council of Teachers of Mathematics (1989). (See "Introduction to the Mathematics performance standards," page 58.) Similarly, the performance standards for English Language Arts were developed in concert with the content standards produced by the National Council of Teachers of English and the International Reading Association (1996). (See "Introduction to the English Language Arts performance standards," page 20.)

The Science performance standards are built upon the National Research Council's *National Science Education Standards*. (1996) and the American Association for the Advancement of Science's Project 2061 *Benchmarks for Science Literacy* (1993). (See "Introduction to the Science performance standards," page 130.)

The case of the Applied Learning performance standards is a little different. Applied Learning focuses on connecting the work students do in school with the demands of the twenty-first century workplace. As a newer focus of study, Applied Learning does not have a distinct professional constituency producing content standards on which performance standards can be built. However, the Secretary's Commission on Achieving Necessary Skills (SCANS) laid a foundation for the field in its report, *Learning a Living: A Blueprint for High Performance* (1992), which defined "Workplace Know-how." We worked from this foundation and from comparable international work to produce our own "Framework for Applied Learning" (New Standards, 1994). The Applied Learning performance standards have been built upon this framework. (See "Introduction to the Applied Learning perf o rmance standards," page 160.)

STANDARDS FOR STANDARDS

In recent years several reports on standards development have established "standards for standards," that is, guidelines for developing standards and criteria for judging their quality. These include the review criteria identified in *Promises to Keep,* the American Federation of Teachers' "Criteria for High Quality Standards," published in *Making Standards Matter* (1995), and the "Principles for Education Standards" developed by the Business Task Force on Student Standards and published in *The Challenge of Change* (1995). We drew from the criteria and principles advocated in these documents in establishing the "standards" we have tried to achieve in the New Standards performance standards.

Standards should establish high standards for all students.

The New Standards partnership has resolved to abolish the practice of expecting less from poor and minority children and children whose first language is not English. These performance standards are intended to help bring all students to high levels of performance.

Much of the onus for making this goal a reality rests on the ways the standards are implemented. The New Standards partners have adopted a Social Compact, which says in part, "Specifically, we pledge to do everything in our power to ensure all students a fair shot at reaching the new performance standards…This means they will be taught a curriculum that will prepare them for the assessments, that their teachers will have the preparation to enable them to teach it well, and there will be…the resources the students and their teachers need to succeed."

There are ways in which the design of the standards themselves can also contribute to the goal of bringing all students to high levels of performance, especially by being clear about what is expected. We have worked to make the expectations included in these performance standards as clear as possible. For some standards it has been possible to do this in the performance descriptions. For example, the Reading standard includes expectations for students to read widely and to read quality materials. Instead of simply exhorting them to do this, we have given more explicit direction by specifying that students should be expected to read at least twenty-five books each year and that those books should be of the quality and complexity illustrated in the sample reading list provided for each grade level. In Mathematics, we have gone beyond simply listing problem solving among our expectations for students. We set out just what we mean by problem solving and what things we expect students to be able to do in problem solving and mathematical reasoning. In addition, by providing numerous examples we have indicated the level of difficulty of the problems students are expected to solve.

The inclusion of work samples and commentaries to illustrate the meaning of the standards is intended to help make the standards clearer. Most of the standards are hard to pin down precisely in words alone. In the Writing standard, for example, the work samples show the expected qualities of writing for the various kinds of writing required and the commentaries explain how these qualities are demonstrated in the work samples. The work samples and commentaries are an integral part of the performance standards.

The work samples will help teachers, students, and parents to picture work that meets standards and to establish goals to reach for. Students need to know what work that meets standards looks like if they are to strive to produce work of the same quality. They also need to see themselves reflected in the work samples if they are to believe that they too are capable of producing such work. We have included work samples drawn from a diverse range of students and from students studying in a wide variety of settings.

Standards should be rigorous and world class.

Is what we expect of our students as rigorous and demanding as what is expected of young people in other countries—especially those countries whose young people consistently perform as well as or better than ours?

That is the question we are trying to answer when we talk about developing world class standards.

Through successive drafts of these performance standards, we compared our work with the national and local curricula of other countries, with textbooks, assessments, and examinations from other countries and, where possible, with work produced by students in other countries. Ultimately, it is the work students produce that will show us whether claims for world class standards can be supported.

We shared the *Consultation Draft* with researchers in other countries and asked them to review it in terms of their own country's standards and in light of what is considered world class in their field. Included among these countries were Australia, Belgium, Canada, the Czech Republic, Denmark, England and Wales, Finland, France, Germany, Japan, the Netherlands, New Zealand, Norway, Poland, Scotland, Singapore, Sweden, and Switzerland. We asked these reviewers to tell us whether each standard is at least as demanding as its counterparts abroad and whether the set of standards represents an appropriately thorough coverage of the subject areas. We also shared the *Consultation Draft* with recognized experts in the field of international comparisons of education, each of whom is familiar with the education systems of several countries.

Our reviewers provided a wealth of constructive responses to the *Consultation Draft.* Most confined their responses to the English Language Arts, Mathematics, and Science standards, though several commended the inclusion of standards for Applied Learning. The reviewers supported the approach we adopted to "concretize" the performance standards through the inclusion of work samples (similar approaches are being used in some other countries,

notably England and Wales and Australia). Some of the reviewers were tentative in their response to the question of whether these performance standards are at least as demanding as their counterparts, noting the difficulty of drawing comparisons in the absence of assessment information, but offered comparative comments in terms of the areas covered by the standards. Some provided a detailed analysis of the performance descriptions together with the work samples and commentaries in terms of the expectations of students at comparable grade levels in other countries.

The reviews confirmed the conclusion we had drawn from our earlier analyses of the curricula, textbooks, and examinations of other countries: while the structure of curricula differs from country to country, the expectations contained in these performance standards represent a thorough coverage of the subject areas. No reviewer identified a case of significant omission. In some cases, reviewers noted that the range of expectations may be greater in the New Standards performance standards than in other countries; for example, few countries expect young people to integrate their learning to the extent required by the standards for investigation in New Standards Mathematics. At the same time, a recent study prepared for the Organisation for Economic Co-operation and Development reports that many countries are moving towards expecting students to engage in practical work of the kind required by the New Standards Science standards (Black and Atkin, 1996). The reviews also suggest that these performance standards contain expectations that are at least as rigorous as, and are in some cases more rigorous than, the demands made of students in other countries. None of the reviewers identified standards for which the expectations expressed in the standards were less demanding than those for students in other countries.

We will continue to monitor the rigor and coverage of the New Standards performance standards and assessments in relation to the expectations of students in other countries. In addition to the continued collection and review of materials from other countries, our efforts will include a review of the New Standards performance standards by the Third International Mathematics and Science Study, collaboration with the Council for Basic Education's plan to collect samples of student work from around the world, continued review of the American Federation of Teachers' series, *Defining World Class Standards,* and collaborative efforts with visiting scholars at the Learning Research and Development Center.

Standards should be useful, developing what is needed for citizenship, employment, and life-long learning.

We believe that the core disciplines provide the strongest foundation for learning what is needed for citizenship, employment, and life-long learning. Thus, we have established explicit standards in the core areas of English Language Arts, Mathematics, and Science. But there is more. In particular, it is critical for young people to achieve high standards in Applied Learning—the fourth area we are working on.

Applied Learning focuses on the capabilities people need to be productive members of society, as individuals who apply the knowledge gained in school and elsewhere to analyze problems and propose solutions, to communicate effectively and coordinate action with others, and to use the tools of the information age workplace.

Applied Learning is not about "job skills" for students who are judged incapable of, or indifferent to, the challenges and opportunities of academic learning. They are the abilities all young people will need, both in the workplace and in their role as citizens. They are the thinking and reasoning abilities demanded both by colleges and by the growing number of high performance workplaces, those that expect people at every level of the organization to take responsibility for the quality of products and services. Some of these abilities are familiar; they have long been recognized goals of schooling, though they have not necessarily been translated clearly into expectations for student performance. Others break new ground; they are the kinds of abilities we now understand will be needed by everyone in the near future. All are skills attuned to the real world of responsible citizenship and dignified work that values and cultivates mind and spirit.

Many reviewers of drafts of these performance standards noted the absence of standards for the core area of social studies, including history, geography, and civics. At the time we began our work, national content standards for those areas were only in early stages of development; we resolved to focus our resources on the four areas we have worked on. As consensus builds around content standards in this additional area, we will examine the possibilities for expanding the New Standards system to include it.

STANDARDS FOR STANDARDS

Standards should be important and focused, parsimonious while including those elements that represent the most important knowledge and skills within the discipline.

As anyone who has been involved in a standards development effort knows, it is easier to add to standards than it is to limit what they cover. It is especially easier to resolve disagreements about the most important things to cover by including everything than it is to resolve the disagreements themselves. We have tried not to take the easier route. We adopted the principle of parsimony as a goal and have tried to practice it. At the same time, we have been concerned not to confuse parsimony with brevity. The performance descriptions are intended to make explicit what it is that students should know and the ways they should demonstrate the knowledge and skills they have acquired. For example, the standards relating to conceptual understanding in Mathematics spell out the expectations of students in some detail.

The approach we have adopted distinguishes between standards as a means of organizing the knowledge and skills of a subject area and as a reference point for assessment, on the one hand, and the curriculum designed to enable students to achieve the standards, on the other. The standards are intended to focus attention on what is important but not to imply that the standards themselves should provide the organizing structure for the curriculum. In English Language Arts, for example, we have established a separate standard for conventions, grammar, and usage. This does not imply that conventions, grammar, and usage should be taught in isolation from other elements of English Language Arts. In fact, all of the work samples included in this book to illustrate the Conventions standard also illustrate parts of the Writing standard. What we are saying is that the work students do should be designed to help them achieve the Conventions standard. This means that conventions, grammar, and usage should not only be among the things assessed but should also be a focus for explicit reporting of student achievement.

Standards should be manageable given the constraints of time.

This criterion follows very closely on the last one, but focuses particularly on making sure that standards are "doable." One of the important features of our standards development effort is the high level of interaction among the people working on the different subject areas. We view the standards for the four areas as a set at each grade level; our publication of the standards by grade level reflects this orientation. This orientation has allowed us to limit the incidence of duplication across subject areas and to recognize and use opportunities for forging stronger connections among subject areas through the work that students do. A key to ensuring the standards are manageable is making the most of opportunities for student work to do "double" and even "triple duty." Most of the work samples included in this book demonstrate the way a single activity can generate work that allows students to demonstrate their achievement in relation to several standards within a subject area. Several of the work samples show how a single activity can allow students to demonstrate their achievement in relation to standards in more than one subject area. (See, for example, "*Counting on Frank*," page 46 and page 100.)

Standards should be adaptable, permitting flexibility in implementation needed for local control, state and regional variation, and differing individual interests and cultural traditions.

These standards are intended for use in widely differing settings. One approach to tackling the need for flexibility to accommodate local control, state and regional variation, and differing individual interests and cultural traditions, is to make the standards general and to leave the job of translating the standards into more specific statements to the people who use them. We have not adopted that approach. These standards need to be specific enough to guide the New Standards assessment system; we have tried to make them specific enough to do so. We have also tried to achieve the degree of specificity necessary to do this without unduly limiting the kinds of flexibility outlined above. Most of the standards are expressed in a way that leaves plenty of room for local decisions about the actual tasks and activities through which the standards may be achieved.

However, the specificity needed for standards intended to guide an assessment system does place some limits on flexibility. To tackle these apparently contradictory demands on the standards, we have adopted the notion of "substitution." This means that when users of these standards identify elements in the standards that are inconsistent with decisions made at the local level, they can substitute their own. An example of this is the Reading standard in English Language Arts. The Reading standard includes the requirement that students should read the equivalent of twenty-five books each year and specifies that they should read material of the quality and complexity illustrated in the sample reading list. We have included the reading list so as to be clear about the quality of reading material we are talking about at each grade level. But we do not claim that the titles on this list are the only ones that would be appropriate. Thus, users who have established their own reading lists and are satisfied with them can replace the lists provided with their own. There is, however, one important proviso: substitution only works when what is substituted is comparable with the material it replaces both in terms of the quality and the quantity of expectation.

Standards should be clear and usable.

Making standards sufficiently clear so that parents, teachers, and students can understand what they mean and what the standards require of them is essential to the purpose for establishing standards in the first place. It is also a challenge because while all of these groups need to understand what the standards are, the kinds of information they need are different. The most obvious difference is between the way in which the standards need to be presented to elementary school students so that they know what they should be striving to achieve and the way in which those same standards need to be presented to teachers so that they can help their students get there. If the standards were written only in a form that elementary school students could access, we would have to leave out information teachers need to do their job.

These standards are being presented in several formats. This version of the standards is written primarily for teachers. It includes technical language about the subject matter of the standards and terms that educators use to describe differences in the quality of work students produce. It could be described as a technical document. That does not mean that parents and students should not have access to it. We have tried to make the standards clear and to avoid jargon, but they do include language that may be difficult for students to comprehend and more detail than some parents may want to deal with.

The standards are also included in the portfolio materials provided for student use. In these materials, the standards are set out in the form of guides to help students select work to include in their portfolios.

A less technical version of the standards is in preparation. It is being written with parents and the community in general in mind. The standards will be the same but they will be explained in more generally accessible language.

Standards should be reflective of broad consensus, resulting from an iterative process of comment, feedback, and revision including educators and the general public.

This publication is the result of progressive revisions to drafts over a period of eighteen months. Early drafts were revised in response to comment and feedback from reviewers nominated by the New Standards partners and the New Standards advisory committees for each of the subject areas, as well as other educators.

The *Consultation Draft,* published in November 1995, was circulated widely for comment. Some 1,500 individuals and organizations were invited to review the *Draft*. The reviewers included nominees of professional associations representing a wide range of interests in education, subject experts in the relevant fields, experienced teachers, business and industry groups, and community organizations. In addition, we held a series of face-to-face consultations to obtain responses and suggestions. These included detailed discussions with members of key groups and organizations and a series of meetings at which we invited people with relevant experience and expertise to provide detailed critique of the *Consultation Draft*. We also received numerous responses from people who purchased the *Consultation Draft* and who took the trouble to complete and return the response form that was included with each copy.

The process of revision of the performance standards was further informed by a series of independently-conducted focus group meetings with parents and other members of the community in several regions of the country and with teachers who were using the *Consultation Draft*.

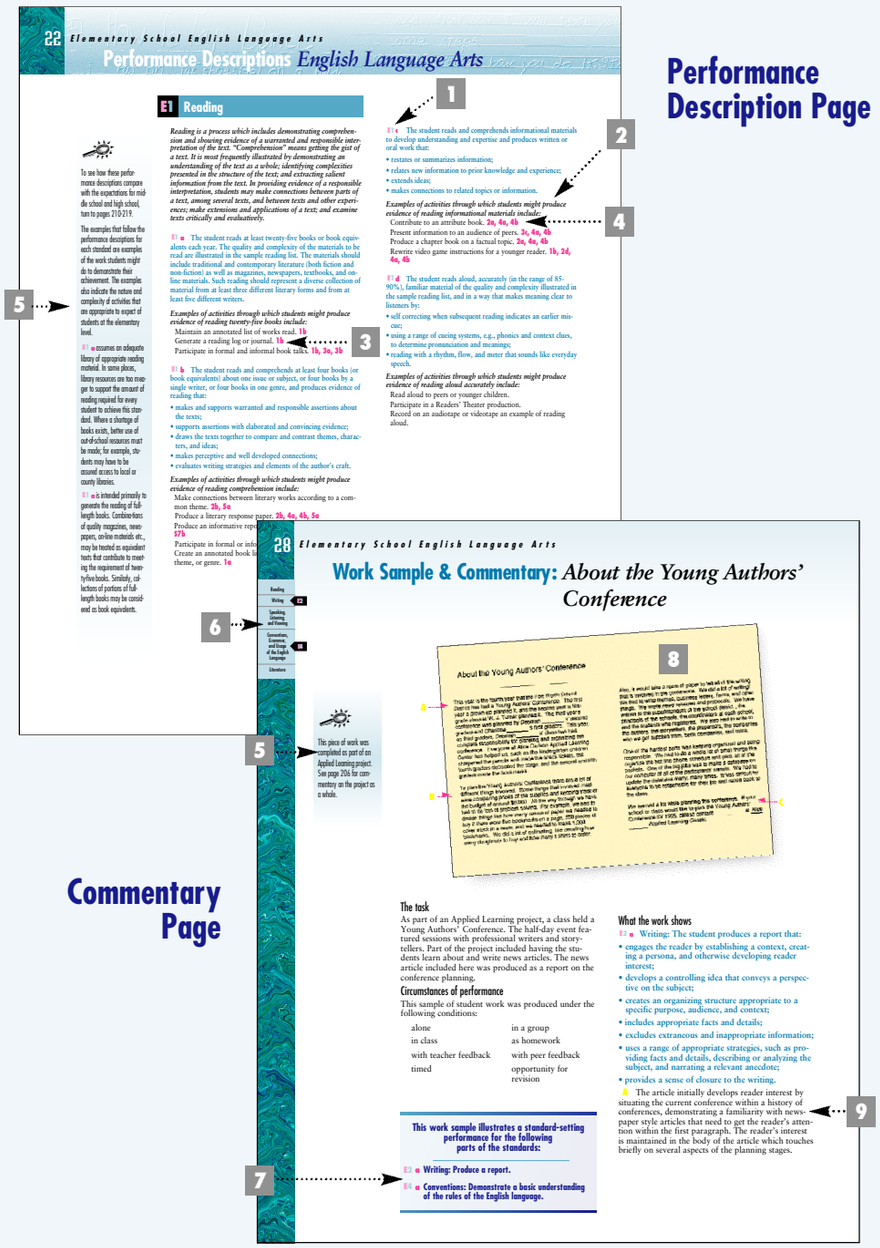
The reviewers provided very supportive and constructive commentary on the *Consultation Draft,* both at the broad level of presentation and formatting of the performance standards and at the detailed level of suggestions for refinements to the performance descriptions for some of the standards. These comments have significantly informed the revisions made to the standards in the preparation of this publication.

HOW TO READ THESE PERFORMANCE STANDARDS

The standards for elementary school are set out in an overview on page 19. The overview provides the names of the standards for each of the four areas: English Language Arts, Mathematics, Science, and Applied Learning. To help you navigate your way through the book, a different color is used for each area.

Elementary school level means the end of fourth grade.

The standards for elementary school are set at the level of achievement expected of students at approximately the end of fourth grade. Some students will achieve this level of performance earlier than the end of fourth grade. Some students will reach it later than the end of fourth grade. What is important is that students have the opportunity to meet the standards. (See "Deciding what constitutes a standard-setting performance," page 12.)



Each standard is identified by a symbol.

Turn to the performance descriptions for English Language Arts on pages 22-26. There are five standards for English Language Arts, each identified by a symbol. The symbol for the Reading standard is E1 . This symbol appears throughout the book wherever there is a reference to this standard.

1 Most standards are made up of several parts.

Most of the standards are made up of several parts, for example, the Reading standard has four parts. Each part is identified by a lower case letter; for example, the part of the Reading standard that refers to reading informational materials is E1 c. These symbols are used throughout the book wherever there is a reference to the relevant part of a standard.

Performance descriptions tell what students are expected to know and be able to do.

Each part of a standard has a performance description. The performance description is a narrative description of what students are expected to know and be able to do. It is shown in color.

2 Examples are the kinds of work students might do to demonstrate their achievement of the standards.

Immediately following the performance descriptions for the standard are examples of the kinds of work students might do to demonstrate their achievement. The examples also indicate the nature and complexity of activities that are appropriate to expect of students at the grade level. However, we use the word "example" deliberately. The examples are intended only to show the kinds of work that students might do and to stimulate ideas for further kinds of work. None of the activities shown in the examples is necessarily required to meet the standard.

3 Cross-references highlight the links between the examples and the performance descriptions.

The symbols that follow each example show the part or parts of the standard to which the example relates.

4 Cross-references also highlight links among the standards.

Often the examples that go with the English Language Arts performance descriptions include cross-references to other parts of the English Language Arts standards.

Cross-references also highlight opportunities for connecting activities across subject matters.

Some cross-references shown following the examples identify parts of standards in other subject matters. These cross-references highlight examples for which the same activity may enable students to demonstrate their achievement in more than one subject matter.

Some cross-references are to Applied Learning.

Some cross-references are to Applied Learning. Applied Learning is not a subject area in its own right. Applied Learning activities are expected to draw on subject matter from English Language Arts, Mathematics, Science, or other subjects. Generally, they will take place as part of studies within one or more subjects. The cross-references show activities that may provide a vehicle for students to demonstrate achievement of standards within one or more subject areas as well as standards for Applied Learning.

Some cross-references also show the possibilities for students to use work from Mathematics or Science to demonstrate their achievement of English Language Arts standards, and vice versa.

We have not tried to highlight every possible cross-reference, only to give an indication of the possibilities. The potential of these examples for realizing the possibilities of enabling students to demonstrate their achievement in more than one subject area depends to a large extent on the specific tasks that are presented to students.

5 Margin notes draw attention to particular aspects of the standards.

The notes in the margin draw attention to particular aspects of the standards, such as the resources to which students need access in order to meet the requirements of the standards.

Comparing the grade levels.

Each page showing performance descriptions has a note in the margin that directs attention to the Appendices which show the performance descriptions at each of the three grade levels: elementary, middle, and high school.

Work samples and commentaries.

Work samples and commentaries appear on the pages immediately following the performance descriptions.

6 Standards are highlighted in the bar at the side of the page.

The bar along the side of the pages showing student work highlights the standards that are illustrated by each work sample.

7 The box at the bottom of the page shows what is illustrated in the work sample.

The shaded box at the bottom of the page lists the parts of the standards that are illustrated in the work sample.

8 Work samples illustrate standard-setting performances.

Each work sample is a genuine piece of student work. We have selected it because it illustrates a standard-setting performance for one or more parts of the standards. (See "Not all performance standards are the same," page 10.)

9 The commentary explains why the work illustrates a standard-setting performance.

The commentary that goes with each work sample identifies the features of the work sample that illustrate the relevant parts of the standards. The commentary explains the task on which the student worked and the circumstances under which the work was completed. It draws attention to the qualities of the work with direct reference to the performance descriptions for the relevant standards.

The commentary also notes our reservations about the work.

The commentary also draws attention to any reservations we have about the student work. (See "Genuine student work," page 12.)

Performance Standards = performance descriptions + work samples + commentaries on the work samples.

Performance standards are, therefore, made up of a combination of performance descriptions, work samples, and commentaries on the work samples:

- The performance descriptions tell what students should know and the ways they should demonstrate the knowledge and skills they have acquired.
- The work samples show work that illustrates standard-setting performances in relation to parts of the standards.
- The commentaries explain why the work is standard-setting with reference to the relevant performance description or descriptions.

Each of these is an essential component of a performance standard.

Most work samples illustrate a standard-setting performance for parts of more than one standard.

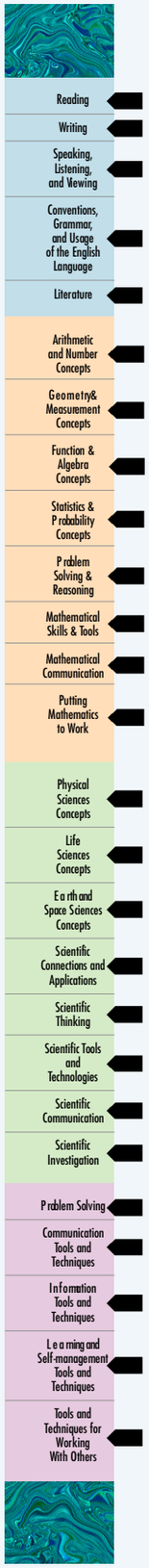
Most work samples illustrate the quality of work expected for parts of more than one standard. For example, some of the work samples selected to illustrate parts of E2 ,Writing, also illustrate a standard-setting performance for one or both parts of E4 , Conventions, Grammar, and Usage of the English Language, or for part of E5 , Literature, or, possibly, all of these.

"Enchiladas" (see page 37) is an example of a work sample that illustrates parts of more than one standard in English Language Arts.

A work sample may illustrate standards from more than one subject area.

Similarly, a work sample may illustrate parts of standards in more than one subject area. For example, a project completed for M8 , Putting Mathematics to Work, might also illustrate the report writing part of E2 , Writing. It might also qualify as a project within the requirements of A1 , Problem Solving.

"*Counting on Frank*" (see page 46 and page 100) is an example of a work sample that illustrates parts of standards from more than one subject area.



NOT ALL PERFORMANCE STANDARDS ARE THE SAME

As you read these performance standards, you will notice that the standards are not all the same. The most obvious difference is in the way in which the performance descriptions for the standards are written. We did not impose a single style on the way in which the standards were written although we probably intended to do so when we began work. The reason we abandoned the idea of a single style is that during the course of the development process, it became increasingly apparent that the various standards are different in nature and have different purposes that lend themselves to different kinds of presentation. But the style we have adopted for each standard is not entirely idiosyncratic. There are some patterns that help make sense of the different styles and of the nature and purposes of the standards for which those styles have been used.

The first distinction that most people notice is the difference between the way the performance descriptions for the Mathematics and Science standards are written, on the one hand, and the way the performance descriptions for the English Language Arts and Applied Learning standards are written, on the other. But closer inspection reveals that the differences among the standards do not fall out as neatly as that division would suggest. Each subject area includes different styles of standards and the styles apply across subject areas.

We have identified four categories or kinds of standards, distinguished by their relationship to products of student learning and by the range of evidence required to demonstrate achievement of the standards. The distinctions are broad rather than neat, and we have sought only to define them generally rather than precisely. These differences among the standards have consequences for what it means to "meet a standard" and, therefore, for the ways in which we can use samples of student work to illustrate standard-setting performances.

Standards that describe a piece of work or a performance

One kind of standard is characterized by E2 ,Writing. Each part of this standard literally describes a piece of work that students are expected to produce and the knowledge and skills that should be evident in that work. For this kind of standard there is a one to one relationship between each part of the standard and a piece of work.

Standards that fit this category generally are the parts of E1 , E2 , E3 , E5 b, M8 , S8 , A1 , A2 , and A5 .

Standards of this kind have several features:

• A single piece of work can meet the standard. In fact all of the requirements of the standard usually must be evident in a single piece of work for it to be judged as meeting the standard.

• The qualities that must be evident in a piece of work for it to meet the standard can be stated explicitly and are listed in bullet points as part of the performance description. These qualities can be thought of as assessment criteria or as a rubric for work that meets the standard.

Work samples and commentaries to illustrate standard-setting performances for standards of this kind include: "How to Tap Dance," page 43, "Dream House Project," page 118, "Fire-Belly Newts," page 156, and "Designing and Building a Bike Trailer," page 165.

Standards that describe conceptual understanding

A second kind of standard is characterized by M1 , Arithmetic and Number Concepts. This standard describes conceptual understanding.

Standards that fit this category are E5 a, M1 , M2 , M3, M4 , S1 , S2 , S3 , and S4..

These standards have several features:

• The standard is made up of a number of distinct parts. It is most unlikely that any single piece of work will demonstrate all parts of the standard. In fact, it is common for a single piece of work to relate only to some aspects of one part of the standard. Thus, the standard can usually only be met by multiple pieces of work.

• Conceptual understanding is developmental. Any one piece of work may contain elements of conceptual understanding that are below what is expected for the grade level and elements that either meet or exceed what is expected for the grade level. Judging whether the work is "good enough" often means making an on-balance judgment. The developmental nature of conceptual understanding makes it difficult to specify in more than general terms the qualities that need to be present in a piece of work for it to be judged as "good enough." These expectations need to be defined concept by concept.

In M1 , M2 , M3 , and M4 , the expectations have been defined more closely through progressive drafts of these performance standards.

S1 , S2 , S3 , and S4 are derived from the *National Science Education Standards* and the *Benchmarks for Science Literacy*, each of which contains detailed explication of the concepts and the expectations of students for conceptual understanding at different grade levels.

Work samples and commentaries to illustrate standard-setting performance for standards of this kind include: "Sharing 25," page 66, and "Flinkers" on page 136.

Standards that describe skills and tools

The third kind of standard is made up of the standards that describe skills and tools, such as analytical skills. It is characterized by S6, Scientific Tools and Technologies.

Standards that fit this category generally are E4, M5, M6, M7, S5, S6, S7, A3, and A4.

These standards have several features:

• As with the standards that describe conceptual understanding, it is most unlikely that any single piece of work will demonstrate all parts of the standard. In fact, it is common for a single piece of work to relate only to some aspects of one part of the standard. Thus, the standard can only be met by multiple pieces of evidence.

• Also, like conceptual understanding, use of skills and tools is developmental. Any one piece of work may contain evidence of use of skills and tools that is below what is expected for the grade level and evidence of use that either meets or exceeds what is expected for the grade level. Deciding whether the work is "good enough" often means making an on-balance judgment.

• What distinguishes these standards from the other kinds is the body of evidence needed to demonstrate that the standard has been met. Here, sufficiency refers not only to the idea of coverage but also to a notion of consistency of application. We want to be confident that the work in question is representative of a body of work.

Ideally, work that provides evidence for these standards also provides evidence for other standards. This is the case for all of the work samples in this book that illustrate parts of these standards.

Work samples and commentaries to illustrate standard-setting performance for standards of this kind include: "How Many Handshakes?" page 90, "Smiles," page 150, and "Bike Helmet Ordinance," page 181.

Standards that describe an accomplishment based on effort

The fourth category is closely related to the first, standards that describe a piece of work or a performance; it could be regarded as a sub-category of those standards. It is characterized by E1 a, Read at least twenty-five books or book equivalents each year.

This part of the Reading standard is designed to encourage and reward effort. It is designed on principles similar to those that apply to the merit badges that have long formed a part of the system of encouragement and rewards for young people in community youth organizations like the Boy Scouts of America and the Girl Scouts of the U.S.A. The twenty-five book requirement is designed to encourage students to develop a habit of reading by requiring that they read a lot. The requirement is challenging, especially since the reading is expected to be of the quality of the materials included in the sample reading list, but it is also confined. This part of the standard is not made more complex by requirements for evidence of depth of reading and comprehension. The message is, if you invest the effort, you will meet the requirement.

An example of a work sample and commentary to illustrate a standard-setting performance for this part of the Reading standard is "Home Reading Record," page 56.

The differences among standards described here have implications for their assessment. (See "How the assessments are connected to the performance standards," page 14.)

THE WORK SAMPLES

The work samples and commentaries form an essential element of the performance standards because they give concrete meaning to the words in the performance descriptions and show the level of performance expected by the standards.

Genuine student work

In all cases, the work samples are genuine student work. While they illustrate standard-setting performances for parts of the standards, many samples are not "perfect" in every respect. Some, for example, include spelling errors, clumsy grammatical constructions, or errors of calculation. We think it is important that the standards be illustrated by means of authentic work samples and accordingly have made no attempt to "doctor" the work in order to correct these imperfections: the work has been included "warts and all." Where errors occur, we have included a note drawing attention to the nature of the mistakes and commenting on their significance in the context of the work. In some cases, for example, the work was produced as a first draft only (in which case it would be expected that the errors would be corrected in work presented as finished work), or there is evidence in the rest of the work to suggest that an error was a slip rather than an error in conceptual understanding.

In other words, we have tried to adopt reasonable expectations for correctness, but not to overlook errors where they arise. We have also resolved to apply those expectations consistently to all the work samples. We have paid attention to spelling, for example, not only in the work samples included to illustrate the English Language Arts standards, but also in those samples included to illustrate standards in the other subject areas. Similarly, we reviewed all work samples for accuracy in relation to mathematical and scientific content.

Work produced by a diverse range of students

The work samples in this book were produced by a diverse range of students in a wide variety of settings. The work comes from places as different from one another as rural communities in Vermont and Iowa, urban communities in Fort Worth, Pittsburgh, San Diego, and New York City, and suburban communities in Washington, California, and Colorado. It comes from students with a wide range of cultural backgrounds, some of whom have a first language other than English. And it comes from students studying in regular programs and from students studying in special education programs. Some of the work was produced under examination conditions in timed settings; most of it was produced in the context of on-going class work and extended projects. Most of the work was produced in school, but some samples were produced through out-of-school programs, such as 4-H and a community youth program.

What unites the work samples is that they all help to illustrate the performance standards by demonstrating standard-setting performances for parts of one or more of the standards.

Deciding what constitutes a standard-setting performance

The work samples published in this book were selected from a much wider range of samples. The samples came from students working on producing New Standards portfolios, from students' work on New Standards reference examinations, from other work produced by students in the classrooms of schools of the states and urban school districts that form the New Standards partnership, and from work produced by students in schools that are involved in related programs.

The collections of student work were reviewed through a variety of strategies to tap the judgment of teachers and subject experts about the "level of performance" at which each of the standards for elementary school should be set. We define the elementary school level as being the expectations for student performance at approximately the end of fourth grade. We used grade level as our reference point because it is in common use and most people understand it. However, "at approximately the end of fourth grade" begs some questions. Do we mean the level at which our fourth graders currently perform? Or, do we mean the level at which our fourth graders might perform if expectations for their performance were higher and the programs through which they learn were designed to help them meet those higher expectations? And, do we mean the level at which the highest-achieving fourth graders perform or the level at which most fourth graders perform?

We established our expectations in terms of what we should expect of students who work hard in a good program; that is, our expectations assume that students will have tried hard to achieve the standards and they will have studied in a program designed to help them to do so. These performance standards are founded on a firm belief that the great majority of students can achieve them, providing they work hard, they study a curriculum designed to help them achieve the standards that is taught by teachers who are prepared to teach it well, and they have adequate resources to succeed.

Some of the work samples included in this book were also included in the *Consultation Draft*; some appeared in earlier drafts as well. The appropriateness of these work samples as illustrating standard-setting performances has been the subject of extensive review, through discussions among our subject advisory committees and through round table discussions among experienced teachers and subject experts. Some of the work samples included in earlier drafts did not pass the scrutiny of these reviews and are not included in this book. Many of the new work samples were identified in the course of meetings set up to score portfolios produced through the New Standards portfolio field trial in 1995-96; oth-

ers were identified in the process of scoring tasks on New Standards reference examinations. These scoring meetings involve multiple scoring and discussion of samples among experienced teachers and subject experts. Cross-referencing the selection of work samples to illustrate the performance standards with the scoring of work produced through the two elements of the New Standards assessment system is critical to ensuring the development of coherence among all the parts of the system.

We have used this process of progressive iterations of review of work samples in relation to the performance descriptions and in relation to our definition of elementary school level to arrive at agreement about the meaning of elementary school level.

Inevitably, agreement about what work constitutes a standard-setting performance has been easiest to achieve for those parts of the standards that relate to familiar kinds of expectations for student work. The parts of the Writing standard that refer to familiar and often-practiced kinds of writing such as narrative account are good examples of this. Not only did we have access to a wide range of samples from which to choose, but teachers and experts in the field have a long tradition of discussion and assessment of the features of good writing for a narrative account. Work samples to illustrate some other parts of the standards are much harder to find; for example, work samples to illustrate the investigations and projects standards in Mathematics and Science and work samples to illustrate each of the Applied Learning standards. Overall, we had access to relatively few work samples for Science and Applied Learning, since work on these areas within the New Standards system is at an early stage by comparison with the work in English Language Arts and Mathematics.

The comprehensiveness of the work samples

This book contains nearly fifty samples of student work and more are contained in the videotape that accompanies the book. We have sought to include work samples that illustrate standard-setting performances for each of the standards and for as many of the parts of the standards as possible. The range of work samples has been expanded considerably over progressive drafts of the standards. But the collection is still not comprehensive. We have included work samples to illustrate only some parts of the conceptual understanding standards in Mathematics and Science, for example, and work samples to illustrate only some of the kinds of projects and investigations included in those standards.

Limiting the number of samples was a deliberate decision. We decided that we would make best use of a print format by seeking to illustrate as many parts of the standards as possible but restricting the overall number of work samples to a manageable number. We also decided to restrict the work samples to samples that illustrate standard-setting performances in relation to parts of the standards, rather than include work samples that illustrate performances that are not of sufficient quality or that exceed expectations for the standards. (With regard to the latter point, collections of work samples that illustrate performances at a range of performance levels do exist within the New Standards system, as part of the Released Tasks and scoring guides for the reference examinations and in the example portfolios; see page 16.)

It is arguable whether any given collection of work samples, regardless of how large, would be adequate for illustrating every part of the standards. Similarly, it is arguable whether any such collection could also demonstrate the range of ways that students might produce work that illustrates standard-setting performances and illustrate the standards more fully by including work that demonstrates a range of levels of performance. To be really useful, such a collection would also need to be capable of being updated to include more effective illustrations of the standards as work that serves the purpose becomes available—a need that we have already noted exists in relation to some of the standards. A publication format that could perform all of those functions presents a tall order, indeed. However, electronic formats hold the promise of making it possible to build a collection of this sort and to make it easily accessible. We hope to make use of the potential of electronic formats in the future.

HOW WILL THE PERFORMANCE STANDARDS BE USED?

The primary audience for these performance standards is teachers. We hope that teachers will use the standards to:

- Help students and parents understand what work that meets standards looks like;
- Inform discussions with their colleagues as they plan programs to help students learn to high standards;
- Challenge assumptions about what we can expect from students;
- Communicate the meaning of high standards to district administrators, school board members, and the public so they can work together to build learning environments that challenge all students.

New Standards will use the performance standards to provide:

- The basis of design specifications for the New Standards assessment system;
- The basis for reporting student scores on assessments within the New Standards system; and
- The basis for linking the New Standards assessment system with the standards and assessment systems of the members of the New Standards partnership.

Assessment based on standards

Performance standards define a student's academic responsibilities and, by implication, the teaching responsibilities of the school. How do we determine whether students have lived up to their academic responsibilities? We assess their work—is it "good enough" by comparison with the standards.

Assessment that serves the purpose of telling us how well students are performing by comparison with standards (standards-referenced assessment) differs from assessment designed to compare students to average performances (norm-referenced assessment). New Standards assessments are standards-referenced assessments. They start with performance standards and they take seriously the type, quality, and balance of performances spelled out by the standards. Assessment systems of this kind look a lot like a sampling of questions and assignments from a standards-based curriculum.

Common examples of standards-referenced examinations are the Advanced Placement (AP) exams of the College Board. The Scholastic Achievement Test (SAT), also from the College Board, is a contrasting example of a norm-referenced test. The AP exams look like the work (type, quality, and balance) students do in the AP courses whereas the SAT looks very different from the work students do in their college preparatory courses. Other well established standards-based examinations include licensure exams for many occupations such as pilots, architects, and electricians.

Unlike the AP or licensure exams, with explicit courses of study that have been debated and agreed upon in an open, public forum (e.g., the College Board, the state bar association or the board of realtors), many individual teacher's grades are based solely on their experience as students and teachers. Unless they participate in an external program like the AP or the International Baccalaureate, teachers rarely have the opportunity to see or discuss an end-of-course examination with others who teach the same course, no less to apply common criteria for marking. Even in the case of high school courses with departmental final examinations, the majority of the feedback to students throughout the school year is based on their individual teacher's judgment. And in the vast majority of the instances, especially in the elementary and middle school years, the individual teacher's standards apply almost exclusively.

It can be argued that the teacher, the person closest to the student's work, is in the best position to assess the student's accomplishment. However, the problem with an assessment system based on individual teacher judgment is that students in different classes, with different teachers, in different schools, work to widely varying standards. There is no common reference for teachers, students, or the public to compare performance across individuals or classrooms. This leads to wide variation in expectation and opportunity. Students get good grades one year for trying hard, then fail the following year for being too far below the average on a test.

New Standards has designed an assessment system that provides a common reference point for students, parents, teachers, and the public who want to judge student performance on the quality and quantity of student work that is expected at a particular level. The New Standards assessment system is based on these performance standards. It has three parts: reference examinations, portfolios, and teacher assessment. While each part of the system can be used independently, the most complete picture of performance referenced to the performance standards comes from using all three.

How the assessments are connected to the performance standards

The performance standards define a domain of expected student performances. Take the Reading standard as an example (see page 22). This standard begins with a definition of reading that describes what we expect students to *be able to do* at approximately the end of fourth grade. The performance descriptions go on to spell out expectations for what students *will accomplish* in terms of the quantity, quality, range, and concentration of their reading. Furthermore, students are expected to *put their reading to work* and the standards say so; students have to produce work based on their reading of specific types of text.

We assess the different elements of the domain defined by a standard by using assessment methods appropriate to the expected performance.

In the English Language Arts reference examination

students read a selection of grade-level appropriate passages. The passages include both literary and informational selections. Students answer two types of questions about the passages. One type of question assesses "understanding of the text as a whole" as described in the definition in the Reading standard. These are straightforward questions about the gist of the text. Some of these questions ask students to write a few sentences, some are multiple choice. The second type of question about the same passages asks students to analyze the text, draw reasonable conclusions, and make interpretations—behaviors that characterize what competent readers do.

To demonstrate their achievement of the Reading standard students must also show what they have accomplished—just as people do when they apply for a job. Assessing actual accomplishments means evaluating a selection of student work according to criteria derived directly from the performance descriptions for the standards. New Standards portfolios are organized around "exhibits," each focused on an area of performance. The reading exhibit in the English Language Arts portfolio requires that students include at least four pieces of work that demonstrate their accomplishments in responding to literary and informational texts of appropriate complexity. The portfolio includes criteria for judging the entries in this exhibit. These criteria are drawn directly from the relevant performance descriptions. The criteria can be used by the student for self-assessment, by the teacher for feedback and grading, and by independent external scorers to report on achievement of standards to the public.

A further requirement of the reading exhibit in the portfolio, again based directly on the performance standards, is certification of what the student has read. The first part of the Reading standard (E1 a) requires that students read at least twenty-five books or book equivalents each year. The reading must include a range of literary forms and works from several writers. Students are also required to read in depth (E1 b). The appropriate assessor for these requirements is the teacher or another adult close to the student who can verify the student's claims for meeting this requirement. This component of the system for assessing achievement of the Reading standard is designed to work like a merit badge in the style of the awards developed by the Girl Scouts of the U.S.A. and the Boy Scouts of America.

To complete the reading exhibit, students are asked to include evidence that demonstrates reading fluency (E1 d). This is also provided by means of teacher certification. The portfolio provides teachers and students with simple criteria for assessing reading aloud for fluency, again drawn from the criteria set out in the Reading standard.

In summary, students' achievement of the Reading standard is assessed through a combination of methods:

• The reference examination provides evidence of comprehension, analysis, and interpretation of literary and informational texts, related to the Reading standard as a whole and particularly to E1 c. (These parts of the reference examination also provide evidence of the first part of the Literature standard, E5 a.)

• The reading exhibit for the portfolio provides evidence of working with literary and informational texts, related to E1 b and E1 c. (Entries included in this exhibit also demonstrate accomplishment in relation to E5 a and may be used to fulfill part of the requirements of the writing exhibit.)

• Teacher assessment in the form of certification, included in the reading exhibit, provides verification of students' claims regarding the twenty-five book requirement and assessment of reading fluency, related to E1 a, E1 b, and E1 d.

This example of how reading is assessed in the New Standards system illustrates several important points. First, the assessment methods and instruments suit the part of the standard to be assessed. Second, the criteria for judging achievement of the standard are drawn as directly as possible from the performance descriptions of the relevant standard. Third, comprehensive assessment of student achievement of the performance standards requires an appropriate combination of external on-demand assessments like the reference examination, externally-set auditable criteria like the portfolio, and teacher assessment.

The assessments are built on the basic principle that students who work hard in a good program should be able to achieve the performance standards. Students who do what is asked of them, read what they are assigned, do their homework, study for examinations, participate in class, and so on, have a right to expect all this work to pay off in learning. If it does not, there is something wrong with the program.

These standards expect students to work hard. For example, the Science standards include an expectation that every student will complete one science investigation in each of the years leading up to graduation chosen from the following: experiment, fieldwork, design, or secondary research. This requirement is demanding for all students, but doable. Most current college bound students are not asked do this much, let alone students who are not intending to go to college. This is not because these students are not capable of doing the work, but because their programs are not organized to give them the opportunity. However, virtually any student who works hard in a good program can produce investigations such as those identified above that meet standards for quality. By setting expectations like this, standards are raised for all students.

Raising standards for all students has important implications for the quality of curriculum and instruction. Indeed, one of the most important reasons for setting high standards is to challenge the system to perform for the students. Appropriate assessments based on these high standards can give the system feedback on how well it is doing and what it has to do next.

HOW WILL THE PERFORMANCE STANDARDS BE USED?

The reference examinations

Mathematics

The Mathematics reference examinations are targeted for grades 4, 8, and 10. Each examination consists of extended response and short answer items. Student responses are scored both holistically and dimensionally.

Students receive three scores for the Mathematics reference examination: one for understanding of mathematical concepts, one for mathematical skills, and one for problem solving and reasoning and mathematical communication.

Standards defining mathematics scores

SCORE	STANDARDS INCLUDED IN SCORE
Conceptual Understanding	M1, M2, M3, M4
Mathematical Skills	M6
Problem Solving and Reasoning/ Mathematical Communication	M5, M7

English Language Arts

The English Language Arts reference examinations are targeted for grades 4, 8, and 10. Each examination includes open-ended responses, short answer responses, essay questions, and multiple choice items. The student responses are scored holistically on two of these forms; the multiple choice responses are scanned.

Students receive four scores for the English Language Arts reference examination: one for writing, one for reading for basic understanding, one for interpretation and analysis of reading, and one for conventions, grammar, and usage of the English language.

Standards defining English Language Arts scores

SCORE	STANDARDS INCLUDED IN SCORE
Reading: Basic Understanding	E1
Reading: Inference and Analysis	E1
Writing	E2
Writing Conventions	E4

The criteria for scoring each task, for example, the writing sample or responses to the reading questions, are defined by rubrics for each score level (usually 0 to 5) and by anchor examples of student performance at each level. Trained scorers use these rubrics and anchor examples to score responses with high reliability.

Released Tasks from the reference examinations, complete with anchor examples and rubrics, are available to assist teachers and students to prepare for the examinations. The Released Tasks also include examples of student responses scored at each of the performance levels.

Each student's level of performance on the reference examination is determined by decision rules for profiles of scores on sets of items or tasks. These rules were established by panels of judges based on the stated expectations of the performance standards, with allowance made for the usual effects of the test-taking situation.

Levels of performance

For each standards-based score, there are five levels of student performance:

H—Achieved the Standard with Honors means that in addition to meeting the standards, a number of the student's responses exceeded the basic criteria for meeting the standard or displayed features characteristic of advanced knowledge and skill.

S—Achieved the Standard means that the student's performances met the standards as set out in the New Standards performance standards.

N—Nearly Achieved the Standard means that the student's performances almost but did not quite meet the performance standards.

B—Below the Standard means that the student's performances clearly did not meet the performance standards.

L—Little Evidence of Achievement means that the student's performances demonstrated little or none of the knowledge and skill expected by the performance standards.

The portfolio system

The portfolio system complements the reference examination by requiring selections of student work that provide evidence of achievement of the performance standards. The portfolios are organized into exhibits; each focuses on an area of performance and includes clear criteria for assessment. The structure and content of the exhibits parallel the structure of the performance standards. Each exhibit is composed of one or more entries; the entry slips tell students exactly what is required and how it will be assessed. The criteria come directly from the performance descriptions for the standards. For example, the middle school Mathematics portfolio has five exhibits drawn directly from the performance standards as is shown in the chart on the next page.

Mathematics portfolio

EXHIBIT	ENTRIES	STANDARD	EXHIBIT REQUIREMENTS
Conceptual Understanding	• Number and Operations • Geometry and Measurement • Functions and Algebra • Probability and Statistics	M1 M2 M3 M4	To demonstrate conceptual understanding, students are required to provide evidence that they can use the concept to solve problems, represent it in multiple ways (through numbers, graphs, symbols, diagrams, or words, as appropriate), and explain it to someone else. The student must include at least two problems, and may include a third if necessary, to provide evidence of all three ways of demonstrating conceptual understanding (using, representing, and explaining).
Problem Solving	• Four problems	M5	The student must include four problems which, taken together, show the full range of problem solving required by the performance standard, including formulation, implementation, and conclusion. Problem solving is defined as using mathematical concepts and skills to solve non-routine, usually realistic, problems that challenge the student to organize the steps to follow for a solution.
Skills and Communication	• Skills • Communication Entries submitted for the other three exhibits are cited as evidence. A few additional pieces of work may be included here to fill important gaps.	M6 M7	Entry slips list skills from M6 (e.g., compute accurately with rational numbers, use equations, formulas, and simple algebraic notation, use geometric shapes and terms correctly) and M7 (e.g., present mathematical procedures and results clearly, systematically, and correctly; use mathematical language and representations with accuracy: numerical tables and equations, formulas, functions, algebraic equations, charts, graphs, and diagrams).
Project	• At least one large scale project each year	M8	This exhibit requires students to put their mathematics to work. Entry slips state criteria, from M8, for assessing the following kinds of projects: data study, mathematical model of a physical system, design of a physical structure, management and planning analysis, pure mathematics investigation, and history of a mathematical idea.
Work in Progress	• No entries submitted		Students keep sample work during the year as candidates for selecting as entries.

Portfolios put the standards directly in the hands of students. They help students manage their responsibility for producing work that achieves the performance standards. They also provide a focus for conversations among teachers and students about how the students' work shows evidence of meeting the performance standards and about the further work students need to do to meet the standards.

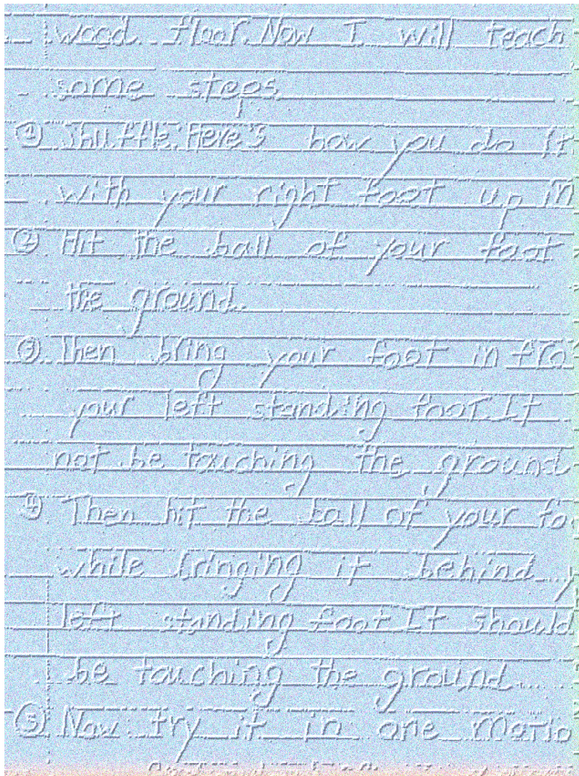
The portfolio system includes exhibit instructions and entry slips for students, and materials for teachers, including scoring materials. The scoring materials include procedures, criteria, and example exhibits of student work.

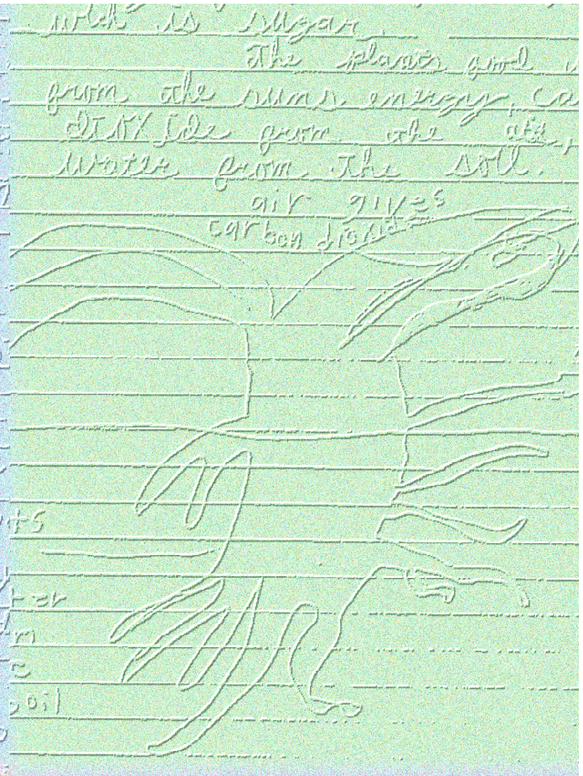
Linking the New Standards system with partners' standards and assessment systems

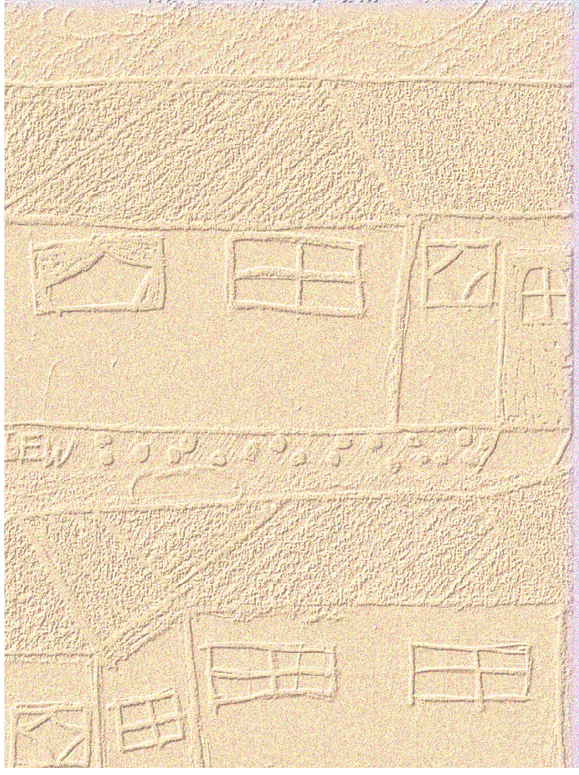
"Linking" is the process of establishing the extent and degree of match between the New Standards system and those of the New Standards partners. It is an essential step in the process of enabling our partners to make decisions about their use of the New Standards system, either in part or as a whole.

Linking is crucial for assuring that student work is assessed according to the same standards that guided its production.

The performance standards provide the initial point of reference for the linking process. While comprehensive linking of assessment systems requires the further step of linking scores on performances, linking standards is a necessary first step and provides a good indication of the potential for linking New Standards with partners' systems.







2,000 hear
at event st

By Bob Mahlburg
Fort Worth Star Telegram

About 2,000 grade school kid
and teachers gathered in Fort Worth f
Authors' Conference yesterday to h
tips from two authors and tales from
storytellers.

"It's fun to listen to them,"
grader Dana , 8, a student at t
Carlson Applied Learning Center w
plan the event.

Featured authors included
books writers Caroline Arnold of L