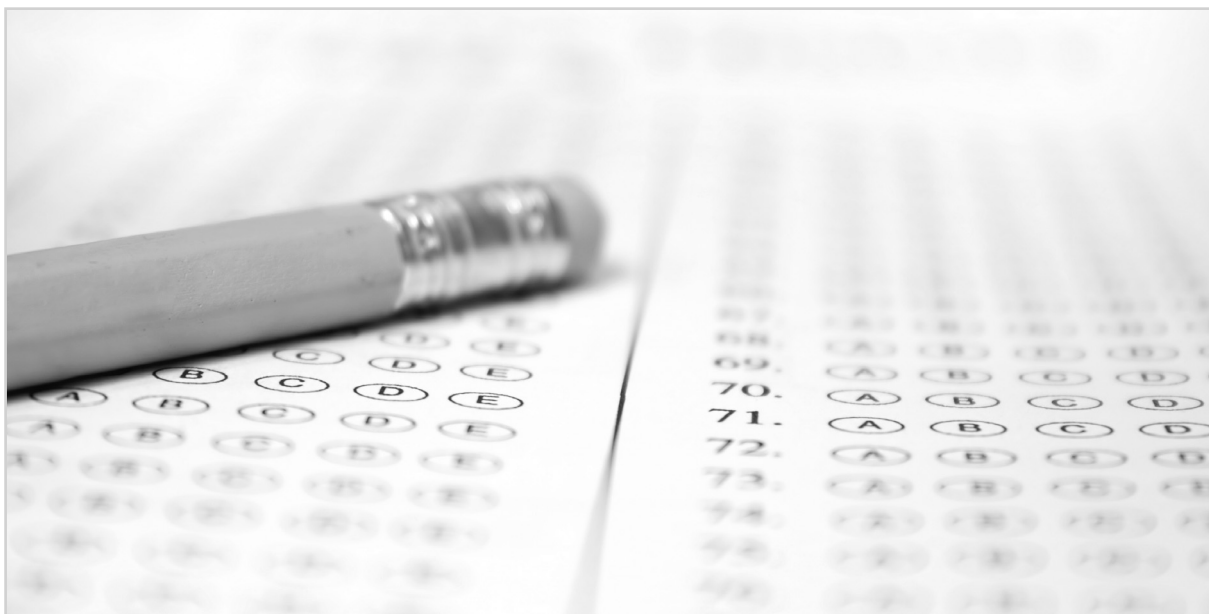


Finish Line Test Preparation Programs

Reading/Language Arts and Mathematics
Grades 2–8

Research Base



Joan Irwin



Continental Press

INTRODUCTION

The primary purpose of assessment is to provide teachers with information to shape instruction and students with information about their growth as learners. In addition to these educational purposes, assessment serves the public interest by providing information about the performance of cohorts of students, schools, and school districts. The *No Child Left Behind Act* (2001) brought renewed emphasis on assessment in America's schools. This Act focused educators' attention on accountability issues centered in the results of high-stakes assessments and led to closer consideration of the link between standards-based instruction and assessment. Consequently, teachers recognized the need to become more attuned to ways in which to help their students prepare for tests.

The National Reading Panel (NICHD, 2000) presented a synthesis of experimental and quasi-experimental research in the areas of phonemic awareness, phonics, reading fluency, reading comprehension, vocabulary, and teacher preparation. The Panel's findings served as the basis for another facet of the *No Child Left Behind Act*: the emphasis on programs and practices that have been demonstrated to be effective through scientific research. The emphasis on research-based instruction has recently been extended to mathematics with Math Now, a federal initiative aimed at strengthening math education in the early grades and middle school (U.S. Department of Education, 2006). Like Reading First and Early Reading First programs that derived from the work of the National Reading Panel and were enacted through *No Child Left Behind*, the Math Now program will promote scientifically based research and promising practices in mathematics instruction. Collectively, the National Reading Panel, *No Child Left Behind*, and Math Now represent a continuing emphasis on research-based instruction. The challenge for educators is to provide sound instruction based on accepted research principles so that their students meet the requirements of content standards and high-stakes assessments. The

challenge for publishers is to provide instructional materials based on what is known from research and best practice so that both teachers and students experience success.

The Continental Press *Finish Line Reading/Language Arts* and *Mathematics* test preparation programs are resources that enable teachers to guide their students in learning skills required by state standards. These supplemental instructional materials provide students with opportunities to experience standards-based instruction and test-taking practice that will prepare them for the state's high-stakes assessments. Designed for use in grades 2 through 8, the programs consist of a Student Workbook that provides a complete sequence of instruction in the state's content standards. The Workbook features a systematic lesson format that includes explicit instruction in the skill or strategy, guided practice, and independent practice.

The *Finish Line Reading/Language Arts* and *Mathematics* programs are completely customized to state assessment standards and indicators. The programs include two parallel test forms that are consistent with the state assessment and designed to familiarize students with the format and nature of that assessment. These tests can be used before teaching to ascertain students' instructional needs or after instruction as a way of determining students' progress. A Teacher's Guide accompanies each Student Workbook and the practice test materials.

The *Finish Line* programs are based on principles defined in assessment research, the National Reading Panel report, and *Principles and Standards for School Mathematics* (NCTM, 2000). The research base for the programs also reflects position statements on assessment from professional organizations including the American Educational Research Association, Association for Supervision & Curriculum Development, International Reading Association,

National Council of Teachers of English, and National Council of Teachers of Mathematics.

This document summarizes research in assessment and instruction and shows how

the *Finish Line Reading/Language Arts* and *Mathematics* test preparation programs align with key research principles.

RESEARCH PRINCIPLES: ASSESSMENT

Learning in school is shaped by what teachers and students do in the classroom. To plan effective instruction, teachers use a variety of assessment techniques to determine what students know and are able to do. The processes of teaching, learning, and assessment must be integrated to enable teachers to plan instruction and to foster students' recognition of what they are learning. Wiggins (2006) observes,

A good local assessment system does more than audit performance. It is deliberately designed to model authentic work and to improve performance. The aim of teaching is not to master state tests, but to meet worthy intellectual standards. We must recapture the primary aim of assessment: to help students better learn and teachers to better instruct. (p. 51)

Similarly, Safer and Fleischman (2005) write, "Student progress monitoring is a practice that helps teachers use student performance data to continually evaluate the effectiveness of their teaching and make more informed instructional decisions" (p. 81).

Assessment is the process of gathering, describing, or quantifying information about performance (CRESST, 1996). One way of describing assessments is to categorize them as formative and summative. Formative assessments are integral to instruction, and teachers use them routinely to provide ongoing feedback to students and to adapt instruction as required (Black & Wiliam, 1998; Chappuis, 2005; Chappuis & Stiggins, 2002; Ciofalo & Wylie, 2006). These assessments offer students a clear picture of learning targets, provide opportunities for teachers to give students timely feedback on their work, engage students

in self-assessment, and define steps that students can take to improve performance (Black & Wiliam, 1998; Earl, 2003).

Summative assessment, usually given at the end of a term or unit of work or on specified dates in the school year, is more limited in its nature and purpose. State tests and the National Assessment of Educational Progress (NAEP) are examples of summative assessment. These large-scale standardized tests are usually administered annually to students at selected grade levels. Such tests constitute assessment of learning; that is, they are "intended to certify learning and report to parents and students about students' progress in school, usually by signaling students' relative position compared to other students" (Earl, 2003, p. 22). Guskey writes, "Large-scale assessments, like all assessments, are designed for a specific purpose. Those used in most states today are designed to rank-order schools and students for the purposes of accountability—and some do so fairly well" (2003, p. 6). Although summative assessments provide teachers with some information about individual student performance and progress, decisions about students' educational opportunities should not be made on the basis of test scores alone. Within the instructional program, teachers have access to many sources of information about students' learning that they can use to shape instruction. The *Finish Line Reading/Language Arts* and *Mathematics* programs provide a variety of instructional and test preparation activities that teachers can use to monitor their students' performance. These resources offer the range of activities that prepare students for the tasks they will encounter on the state assessment.

RESEARCH PRINCIPLES: ASSESSMENT

The increasing emphasis on high-stakes assessment challenges educators to become conversant with research principles related to assessment. A review of research and the position statements from professional organizations (AERA, 2000; ASCD, 2004; IRA, 1999; NCTE, 2004; NCTM, 2000, 2006) reveals four principles:

1. The test is aligned with content standards. Test items must adequately represent the curriculum so that performance is measured against standards that serve as indicators of what students should know and be able to do.
2. The test contains a representative range of knowledge across the standards. The test should effectively sample across the objectives defined in the state's standards rather than focusing on only a few objectives.
3. The test should be representative of a range of cognitive demands. The test should include items that call on students to apply learning strategies through both multiple-choice and constructed responses.

4. The test should provide an occasion for teachers to obtain information about trends in student performance. Furthermore, the test results should offer teachers and students timely, effective, and helpful feedback to facilitate progress toward meeting standards.

The Continental Press *Finish Line Reading/Language Arts* and *Mathematics* test preparation programs are designed to assist teachers with instruction that will build students' skills and knowledge as well as help them to master the tasks presented on the state tests. Wiggins (2006) raises the question "Should we provide practice on traditional tests?" He answers, "Of course." The resources in these programs provide a range of activities that will lead to improvements in student performance. The results of an impact study, "Research-based Success in Reading and Math," are provided in the Appendix.

RESEARCH PRINCIPLES: ASSESSMENT

Table 1 provides an example of the alignment of one state’s *Finish Line Reading/Language Arts* and *Mathematics* programs with assessment principles. These materials are practice tests designed to help students

prepare for the state testing programs in reading/language arts and mathematics. The practice tests are aligned with state content standards and performance indicators.

TABLE 1:

Finish Line Reading/Language Arts and Mathematics Practice Tests Alignment with Assessment Principles

Assessment Principles	Features of <i>Finish Line Practice Tests</i>
Test is aligned with content standards.	<p>Test items are correlated to state language arts and mathematics content standards.</p> <p>Teacher’s Guide lists assessed standards and performance indicators.</p> <p>Two parallel test forms are designed to help students prepare for state testing program.</p>
Test represents a range of knowledge across the standards.	<p>Teacher’s Guide includes correlations to state performance indicators.</p> <p>The format and language of the test items are representative of those used in the state test.</p>
Test represents a range of cognitive demands on learners.	<p>Test items include both multiple-choice and constructed responses.</p> <p>Reading/Language Arts tests include reading, listening, and writing tasks.</p> <p>Math tests include number sense and operations, measurement, algebra, geometry, and statistics and probability tasks.</p>
Test results inform teachers and students about progress in learning.	<p>Parallel forms of the test can be administered before and after instruction, or at any time during the school year.</p> <p>Teacher’s Guide provides:</p> <ul style="list-style-type: none"> • Suggestions for using the materials • Directions for administering the tests • Scoring guidelines and rubrics • Class profile chart for multiple-choice questions <p>Teacher’s Guide recommends scheduling student review sessions as close as possible to the completion of each part of the tests.</p> <p>Rubrics from the Teacher’s Guide can be used by students to assess their responses to open-response tasks.</p>

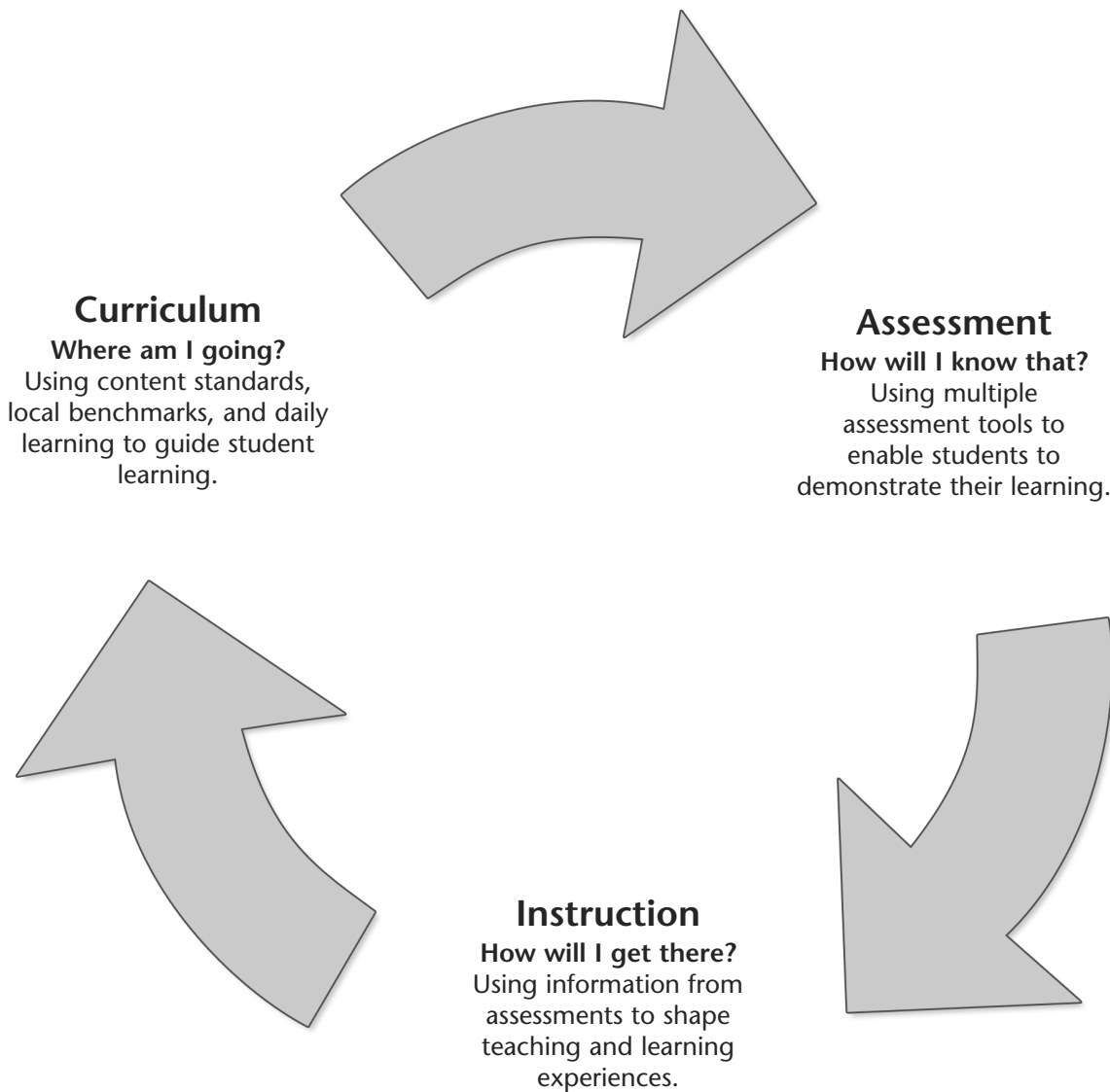
RESEARCH PRINCIPLES: INSTRUCTION

The research on effective formative assessment suggests that students should be able to answer three basic questions: Where am I going? How will I know that? and How will I get there? (Black & Wiliam, 1998; Chappuis, 2005;

Guskey, 2003). These questions provide a framework for illustrating the reciprocal and integrative nature of curriculum, assessment, and instruction (see Figure 1; adapted from Cobb, 2003).

FIGURE 1:

The Reciprocal Relationship Among Curriculum, Assessment, and Instruction



RESEARCH PRINCIPLES: INSTRUCTION

The model in Figure 1 provides a parallel for the instructional design in the Continental Press *Finish Line Reading/Language Arts* and *Mathematics* test preparation programs. Lessons and tests are based on the state's assessment standards, and the structure of lessons provides opportunities for teachers to identify students' learning needs and deliver explicit instruction in skills and strategies. This instructional design is based on research reported in various sources including the National Reading Panel report (NICHD, 2000) and *Principles and Standards for School Mathematics* (NCTM, 2000).

For the purposes of this document, two areas of research in the National Reading Panel report have application: vocabulary instruction and reading comprehension. These aspects of instruction are significant for both literacy and mathematics learning. The findings on vocabulary revealed that it should be taught directly and indirectly. Instruction should include repetition and multiple exposures to vocabulary items as well as varied contexts in which students encounter the words in listening, speaking, reading, and writing activities. The data for reading comprehension indicate that "readers derive meaning from text when they engage in intentional, problem solving thinking processes" (NICHD, 2000). The research presents a rationale for the explicit teaching of comprehension skills and strategies that involves teacher modeling, scaffolded instruction, and comprehension monitoring. Duke and Pearson (2002) describe a model of comprehension instruction that incorporates these findings:

1. An explicit description of the strategy and when and how it is used
2. Teacher and/or student modeling of the strategy in action
3. Collaborative use of the strategy in action
4. Guided practice using the strategy with gradual release of responsibility
5. Independent use of the strategy.

The systematic lesson format used in the *Finish Line Reading/English Language Arts* and *Mathematics* test preparation programs adheres to this instructional model. Although the model centers on reading comprehension instruction, it is equally applicable to mathematics instruction. For students to succeed in mathematics, they must be able to understand math concepts as well as math language, text structure, and processes. These processes include representation, connections, communication, reasoning and proof, and problem solving (NCTM, 2000). Effective comprehension skills are central to students' success with math processes. Consequently, instruction must support students in developing math vocabulary, understanding the structure of math problems, knowing how to make inferences, and integrating math knowledge with comprehension strategies.

Principles and Standards for School Mathematics (NCTM, 2000) makes this point: "Effective mathematics teaching requires understanding what students know and need to learn and then challenging and supporting them to learn it well" (p. 17). These standards provide guidelines for instructional practices that foster students' growth in mathematics:

- Teachers know how to ask questions and plan lessons that reveal students' prior knowledge.
- Teachers design experiences and lessons that respond to and build on this knowledge.
- Teachers create an environment that facilitates mathematical thinking by providing opportunities for students to think, question, solve problems, and discuss their ideas, strategies, and solutions.
- Teachers continually set mathematical goals, observe students, and adjust instructional decisions and practices.

RESEARCH PRINCIPLES: INSTRUCTION

The lessons in the *Finish Line Mathematics* test preparation program are designed according to these guidelines. Lessons provide instruction and practice in multiple types of assessment problems, specific to the standards addressed in each lesson. These assessment tasks may include multiple choice, short answers, short constructed responses, extended constructed responses, and student-produced responses. The lessons reflect steps in direct instruction—orientation to the lesson, initial instruction,

teacher-guided practice, independent practice, check, and reteach (Bender, 2005).

Table 2 provides an example of the alignment of one state's *Finish Line Reading/Language Arts* and *Mathematics* programs with research-based instructional principles. These programs are designed to help students acquire skills, strategies, and concepts that will enable them to meet state content standards as well as perform successfully on state assessments.

TABLE 2:

Finish Line Reading/Language Arts and Mathematics Alignment with Research-based Instructional Principles

Instructional Principles	Features of <i>Finish Line Reading/Language Arts</i> Program	Features of <i>Finish Line Mathematics</i> Program
Explicit instruction in skills or concepts	<p>Each lesson begins with an explanation of the skill or content being taught.</p> <p>The Teacher's Guide provides directions for introducing the skill or concept.</p>	<p>The first page of each lesson provides explicit instruction about the skills or concepts.</p> <p>The lesson includes examples to illustrate the topic.</p> <p>A sidebar includes notes about vocabulary and related concepts.</p> <p>The Teacher's Guide presents general suggestions for using the lessons.</p>
Explicit instruction in strategies or processes	<p>The Teacher's Guide presents suggestions for teaching the strategy that is targeted in the unit.</p> <p>Both narrative and informational texts are provided to enable students to apply their skills.</p>	<p>Step-by-step explanations demonstrate how to work through procedures and problem-solving strategies.</p> <p>The answer to the first multiple-choice (MC) question is explained so that students are guided in understanding the appropriate response.</p> <p>The first of the short-response (SR) items is completed for the student as a demonstration of the correct way to respond.</p>

(continued)

RESEARCH PRINCIPLES: INSTRUCTION

TABLE 2 CONTINUED:

Finish Line Reading/Language Arts and Mathematics Alignment
with Research-based Instructional Principles

Instructional Principles	Features of <i>Finish Line Reading/Language Arts Program</i>	Features of <i>Finish Line Mathematics Program</i>
Scaffolded instruction	<p>The systematic lesson format provides constant guidance for the students—observing teacher modeling, practicing the steps, using the strategy, and advancing to independent application of the strategy.</p> <p>The Teacher’s Guide describes modeling procedures as well as specific strategies for the students to use as they develop understanding of skills and strategies related to the targeted content standard.</p>	<p>Three pages of practice items follow the lesson page.</p> <p>The practice items gradually increase in difficulty.</p> <ul style="list-style-type: none"> • Initial practice problems consist of multiple-choice items. • The next page of practice problems present SR items that require students to answer a specific question. • The last page of practice problems presents an extended constructed response (ECR) item that requires additional work. Here students explain the process they used to get the answer.
Comprehension monitoring	<p>In the <i>Guided Practice</i> part of the lesson, each practice question is followed by a shaded box in which the correct answer is given along with an explanation of <i>why</i> it is the correct answer.</p>	<p>The first of the multiple-choice problems is followed by a boxed explanation of the correct answer and how to find it.</p> <p>The first of the SR items is accompanied by a boxed explanation that shows the kind of information needed to support the answer.</p> <p><i>Ask Yourself</i> questions are included in the final ECR item to help students use the appropriate process to solve the problem.</p> <p>Hints and leading questions are included with the last item of the lesson to help students monitor their comprehension.</p>
Independent practice	<p><i>Guided Practice</i> ends with an independent writing activity or a graphic organizer that gives students further practice related to the standards and skills taught in that lesson.</p> <p>The <i>Test Yourself</i> activity at the end of each lesson provides a new reading selection followed by both MC and SR questions for students to complete independently.</p>	<p>The lesson organization takes students through a series of steps leading to independent practice at the end of the unit.</p> <p><i>Unit Reviews</i> represent all the topics and performance indicators taught in the preceding lessons of the unit.</p> <p>Review items are sequenced in difficulty—MC, SR, and ECR.</p> <p><i>Unit Reviews</i> may be used as mini-tests or as homework assignments.</p>

CONCLUSION

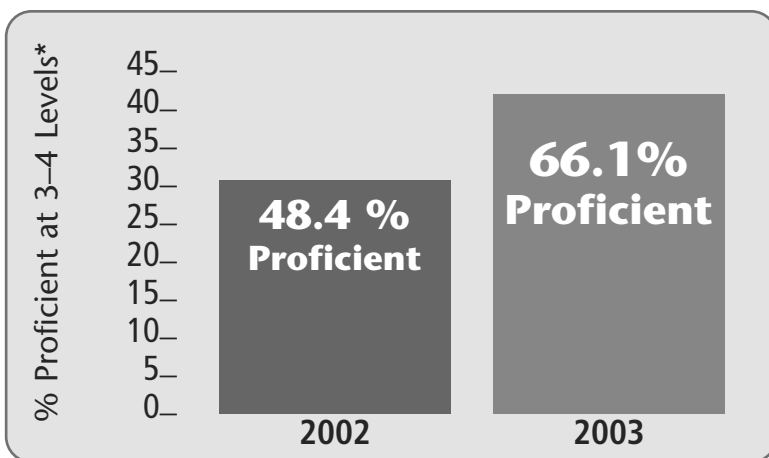
The Continental Press *Finish Line Reading/Language Arts* and *Mathematics* test preparation programs are designed according to current research evidence about effective assessment and instructional practices. The primary goal of each program is to provide teachers and students with resources that will facilitate learning and build student confidence in preparation for the state assessment. The programs focus on the skills and strategies that

students need to acquire to become independent in language arts and mathematics. The programs also familiarize students with test formats and procedures that are consistent with those used in the state assessment. Consequently, the resources in these programs enable teachers to meet three critical aspects of assessment: assessment FOR learning, assessment AS learning, and assessment OF learning (Earl, 2003; Stiggins, 2005).

Research-based Success in Reading and Math

Schools showed significant increases in test scores using *Finish Line Reading* with *Reading for Application and Instruction* and *Finish Line Mathematics* with *Mathematics for Application and Instruction*.

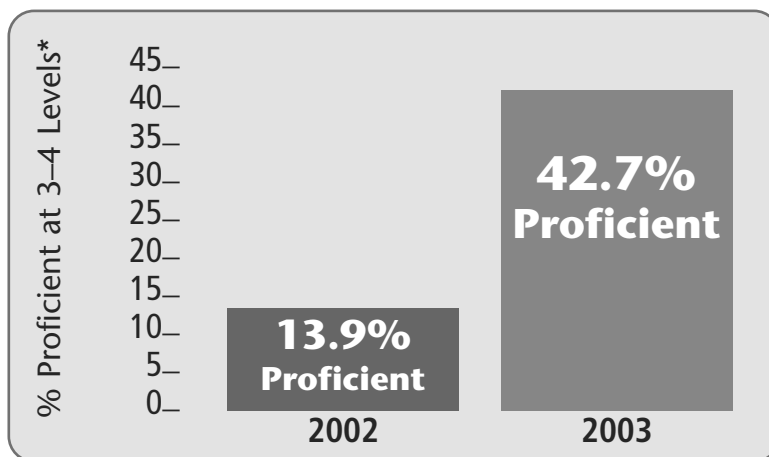
Reading Results for PS 121, Grades 3–8



PS 121

Located in Ozone Park, New York, this K–6 school has 1,132 students, of which 66.2% are eligible for free lunches.

Math Results for PS 267, Grades 3–8



PS 267

Located in Brooklyn, New York, this middle school has 396 students, of which 89.7% are eligible for free lunches.

*Level 3: Students meet learning standards *Level 4: Students exceed learning standards

Data: Scores for all schools provided by the New York City Board of Education through the division of Assessment and Accountability from the 2002–03 Annual School Report.

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