



PreK-12 Appropriations Committee

Thursday, March 12, 2009
9:00 a.m. – 12:00 p.m.
404 House Office Building

Meeting Packet



The Florida House of Representatives

PreK-12 Appropriations Committee

Larry Cretul
Speaker

Anitere Flores
Chair

Meeting Agenda

Thursday, March 12, 2009
404 House Office Building
9:00 a.m. to 12:00 p.m.

I. Call to Order

II. Roll Call

III. Dale Hickam Excellent Teaching Program Presentation

Laurie Scott, Legislative Policy Analyst
OPPAGA

Peggy Brookins, National Board Certified Teacher
Forest High School, Ocala, FL

Dr. Linda Cavalluzzo, Senior Researcher
Education Center, CNA Corporation

IV. Florida Holocaust Museum Presentation

Mark W. Anderson, Governmental Affairs Representative
Florida Holocaust Museum

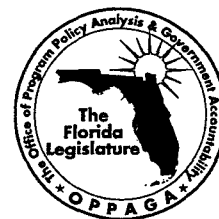
Carolyn Bass, Executive Director
Florida Holocaust Museum

V. Adjournment



The Florida Legislature

OFFICE OF PROGRAM POLICY ANALYSIS AND
GOVERNMENT ACCOUNTABILITY



RESEARCH MEMORANDUM

Update to Memo on the Impact of National Board Certification on Teacher Effectiveness

February 19, 2009

Summary

As requested, this memo provides information on the impact of National Board Certification on Teacher Effectiveness and updates information provided in an OPPAGA September 18, 2007 research memo. That memo concluded that available studies indicated that National Board Certification may help to identify effective teachers, but did not show that the process of National Board Certification itself increases student scores on achievement tests.

Since our prior memo, the National Research Council has issued a study evaluating the impacts of the National Board for Professional Teaching Standards. This report indicates that students taught by board-certified teachers make slightly higher achievement test score gains than those taught by teachers who have not applied for board certification. The magnitude of this effect varies for reading and math and by state or jurisdiction.

This memo summarizes the findings of existing research and provides a summary of data that the Department of Education presented to the Florida House PreK-12 Appropriations Committee in response to a request for student outcomes information. This data is also attached to this memo as Appendix A.

Effects of Board-Certified Teachers on Student Outcomes

Our 2007 memo concluded that recent studies had indicated that National Board Certification may help to identify effective teachers. However, these studies did not show that the process of National Board Certification itself increases student scores on achievement tests. We also concluded that while earlier studies had shown some effect of the certification process on student scores, these effect sizes were very small.

The 2008 National Research Council report confirms this assessment. This report, *Assessing Accomplished Teaching: Advanced-Level Certification Programs* (Committee on Evaluation of Teacher Certification by the National Board for Professional Teaching Standards, National Research Council, 2008), assessed seven studies that used achievement tests as an outcome measure and were considered to have adequate sample sizes and appropriate methodologies. The committee assessed whether these studies allowed conclusions to be made regarding whether National Board Certification identifies effective teachers. In addition, the committee conducted

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its own analysis of data from North Carolina and Florida to correct for certain limitations in existing studies.

The committee found that in North Carolina and Florida students in the fourth and fifth grade who had National Board Certified teachers made higher gains in reading and math than those taught by non-National Board Certified teachers. In Florida, the gains in reading were less than in North Carolina and there were no gains in math. Using data from Los Angeles, the committee found that students of National Board Certified teachers made similar gains to those of students whose teachers had never applied for board certification. However, the students of teachers who had tried and failed to achieve board certification made lower gains. The committee concluded that students of National Board Certified teachers make slightly higher gains, but the effect sizes vary by subject and location. The committee confirmed the finding of those studies which concluded that National Board Certification **identifies** effective teachers. An important caveat to these findings is that the effects are small even when statistically significant. For example, the highest effect size that the committee found, which was 8% of a standard deviation, represents about 1 point on a test with a mean score of 150. (p. 179)

The committee was hesitant to generalize the findings to other states, subjects, and grades, and suggested that the Florida and North Carolina studies be replicated in other states, content areas, and grades. As another possible path for future research the committee recommended studies of student outcomes other than test scores such as motivation, breadth of achievement, attendance, and promotion rates. These measures may more accurately reflect the entire set of skills National Board Certified Teachers are expected to demonstrate, particularly impacts of skills that are not captured by accountability tests.

Studies Reviewed in Both Our Original Memo and the NRC Report

Clotfelter, Charles T., Helen F. Ladd and Jacob L. Vigdor. 2007. *How and Why Do Teacher Credentials Matter for Student Achievement?* CALDER Working Paper 2.

Harris, Douglas N. and Tim R. Sass. 2007. *The Effects of NBPTS-Certified Teachers on Student Achievement.* CALDER Working Paper 4.

Cavalluzzo, L.C. 2004. *Is National Board Certification An Effective Signal of Teacher Quality?* Alexandria, VA: The CNA Corporation.

Goldhaber, Dan & Emily Anthony. 2004. *Can Teacher Quality Be Effectively Assessed?* Urban Institute.

Summary of Florida Department of Education Data

In response to a request for information on outcomes for students of Florida National Board Certified Teachers, the Department of Education provided two sets of data to the House PreK-12 Appropriations Committee. (Appendix A.) One chart presents the percentages National Board Certified teachers represent of the top 10% and 25% of reading and math teachers as measured by student learning gains. To illustrate, these teachers make up 4.5% of all middle school reading teachers, but 10.3% of the top 10% of middle school reading teachers.¹

The second chart compares National Board Certified Teachers and non-National Board Certified Teachers in math and reading, and the percentage of their students making "learning gains." For example, 33% of non- National Board Certified Teachers students in high school reading made

¹ Identified based on value table analysis of student learning gains on FCAT.

RE: Update to Memo on the Impact of National Board Certification on Teacher Effectiveness

Date: February 18, 2009

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gains compared to 47% of students of National Board Certified Teachers. This data, however, illustrates the difficulty inherent in isolating the effect of National Board Certified Teachers on student outcomes from other factors. The data provided by the department also includes information on other characteristics of the students taught by National Board Certified Teachers compared to those taught by non-National Board Certified Teachers, and there appear to be significant differences in the two groups of students. For example, in high school reading, 47% of students entering the classes of National Board Certified Teachers scored level 3 or higher on the FCAT compared to only 26% for non-National Board Certified Teachers. For this same group (high school reading teachers), 12% of students in the classes of National Board Certified Teachers have disabilities compared to 21% for non-National Board Certified Teachers.

Appendix A

Charts Provided by the Department of Education

2007-08
 MATH

	Nat'l Board			Nat'l Board			Nat'l Board		
	Certified	All Teachers*		Certified	Top 10%		Certified	Top 25%	
Elementary	1256	20656	6.1%	171	2075	8.2%	431	5164	8.3%
Middle	317	8461	3.7%	70	847	8.3%	152	2120	7.2%
High	328	7053	4.7%	79	709	11.1%	163	1774	9.2%
READING									
	Nat'l Board			Nat'l Board			Nat'l Board		
	Certified	All Teachers*		Certified	Top 10%		Certified	Top 25%	
Elementary	1370	22147	6.2%	207	2223	9.3%	448	5553	8.1%
Middle	576	12935	4.5%	134	1297	10.3%	221	3236	6.8%
High	491	9760	5.0%	113	978	11.6%	218	2443	8.9%

*Teachers with 10 students or more in the subject

Top 10% and Top 25% of teachers identified based on value table analysis of student learning gains on FCAT

Appendix A

Charts Provided by the Department of Education (continued)

Elementary School Reading Teachers (Grades 4 and 5)

	Number of Teachers	Percent of their Students Making Learning Gains	On Average				School Characteristics	
			Teacher Years of Experience	Percent of Students with Disabilities in the Teacher's Class	Percent of English Language Learners in the Teacher's Class	Percent of Students entering the Teacher's Class Scoring Level 3 or Higher on FCAT	Percent of Minority Students at School	Percent of Students on Free or Reduced Lunch at School
National Board Certified Teachers	1370	65	15	16	5	74	49	46
NOT National Board Certified Teachers	20777	60	10	17	7	66	57	55

Middle School Reading Teachers (Grades 6-8)


	Number of Teachers	Percent of their Students Making Learning Gains	On Average				School Characteristics	
			Teacher Years of Experience	Percent of Students with Disabilities in the Teacher's Class	Percent of English Language Learners in the Teacher's Class	Percent of Students entering the Teacher's Class Scoring Level 3 or Higher on FCAT	Percent of Minority Students at School	Percent of Students on Free or Reduced Lunch at School
National Board Certified Teachers	576	57	15	17	5	63	45	41
NOT National Board Certified Teachers	12369	49	9	24	8	47	54	52

High School Reading Teachers (Grades 9 and 10)

	Number of Teachers	Percent of their Students Making Learning Gains	On Average				School Characteristics	
			Teacher Years of Experience	Percent of Students with Disabilities in the Teacher's Class	Percent of English Language Learners in the Teacher's Class	Percent of Students entering the Teacher's Class Scoring Level 3 or Higher on FCAT	Percent of Minority Students at School	Percent of Students on Free or Reduced Lunch at School
National Board Certified Teachers	491	47	15	12	4	47	47	34
NOT National Board Certified Teachers	9269	33	9	21	6	26	53	40

National Board Certified Teachers and Student Performance

- Analysis of reading and mathematics teachers in 2007-08 indicated that, on average, teachers with National Board Certification had a higher percentage of their students demonstrating learning gains on FCAT than teachers without National Board Certification.
- **However**, data indicate that teachers with National Board Certification have different characteristics than teachers without National Board Certification. These different characteristics may account for the difference in student learning gains. Namely, on average,
 - National Board Certified teachers have more years of experience than those teachers without this certification.
 - National Board Certified teachers had higher percentages of students who entered their classrooms already proficient (i.e., scoring Level 3 or higher on FCAT) than teachers without this certification.
 - National Board Certified teachers had lower percentages of students with disabilities in their classrooms than teachers without this certification.
 - National Board Certified teachers had lower percentages of English Language Learners in their classrooms than teachers without this certification.
- Additional statistical analysis indicated that being a National Board Certified teacher had no independent statistically significant impact on student learning gains, when years of experience, percent of already proficient students in the classroom, percent of students with disabilities in the classroom, and percent of English Language Learners in the classroom are accounted for.



Excellent Teaching Program

March 12, 2009

Presentation to the
PreK-12 Appropriations Committee

Laurie Scott, Legislative Analyst

Excellent Teaching Program

- Provides two types of bonuses to teachers who attain National Board Certification
- Salary bonus – hold a national board certificate
- Mentoring bonus – provide at least 12 workdays of mentoring
- Each bonus designed to be 10% of the previous year’s statewide average teachers salary
- However, prorated based on the funds available with priority to the salary bonus

2008-09 Funding

- **\$57.6 million appropriated**
- **11,357 teachers eligible for a certification bonus**
- **Total bonus per teacher - \$5,051**
- **Did not fund mentoring bonuses**

37 States Provided Incentives in 2008

Type of Incentive

	Number of States
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Fee Support	27
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Salary Increase	28
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Other Incentive	12 and D.C.
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No Incentives	13
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Other States

Types of Salary Awards

- **Flat salary increases – 24 states**
 - \$1000 to \$7500 per year (some limited to a certain number of years)
- **Percentage salary bonuses – 4 states**
 - 5% to 12% (Florida is 10%)
- **Salary bonus or additional bonus tied to teaching in low-performing school – 5 states**
 - \$10,000/yr for 3 years
 - One time bonus of \$20,000

Two States Considering Changes

■ Georgia

- Legislature considering eliminating salary bonus for teachers who earn certification in the future

■ South Carolina

- Legislature considered eliminating salary bonus after initial ten year certification period

Research on National Board Certification

- National Board Certification may help to identify effective teachers
- Research does not show that the process of National Board Certification itself increases student achievement

Research Studies

- **Wide variety of recent studies**
- **Overarching study by the National Research Council**
 - Assessed seven studies that used achievement tests as an outcome measure and had appropriate methodologies
 - Conducted additional analysis of data from Florida and North Carolina

National Research Council

- **North Carolina and Florida students in 4th and 5th grade who had National Board Certified Teachers**
 - North Carolina – Students of national board certified teachers, higher gains in reading and math
 - Florida – Students of national board certified teachers, small reading gains and no gains in math
- **Concluded – Students of national board certified teachers make slightly higher gains but the amount of gain varies**

Student Achievement

- Achievement gains small even when statistically significant
- The largest gain found represents about 1 point on a test with a mean score of 150

Florida Department of Education's Analysis

- Teachers with national board certification had higher percentage of their students demonstrating learning gains
- However, when the characteristics of the students and teachers were taken into consideration they found no impact on learning gains

Characteristics of National Board Certified Teachers and their Students

Florida National Board Certified Teachers

- Have more years of experience
- Had higher percentages of students who were already proficient (i.e., scoring Level 3 or higher on FCAT
- Had lower percentages of students with disabilities in their classrooms than teachers without this certification
- Had lower percentages of English Language Learners in their classrooms

Questions?

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Selected Assessment Center Exercises

Introduction

This section contains exercises administered in a previous assessment cycle. The print versions here present information that candidates saw onscreen at the assessment center: instructions for using the computer, onscreen stimulus materials (if any), and the prompts to which the candidates responded. These exercises have been included in this *Guide* to help you become familiar with the structure of assessment center exercises and to help you understand the rubrics in the previous section. The exercise prompts in this section do not represent actual prompts candidates will see at assessment centers in the future.

Please note that assessment center exercises cover the **entire** age range in the certificate. Be aware that you are expected to demonstrate knowledge of developmentally appropriate content across the full age range of your certificate.

Exercise 3: Data Analysis

Introduction

In this exercise, you will use your knowledge of data analysis to provide various graphical representations and interpretations of a given set of data. You will be asked to respond to two prompts.

Criteria for Scoring

To satisfy the highest level of the scoring rubric, your responses must provide clear, consistent, and convincing evidence of the following:

- a complete and accurate graphical representation of a given set of data;
- a meaningful interpretation of the data as seen through the graphical representation;
- an appropriate and accurate alternate graphical representation of the data; and
- a meaningful, accurate, and distinct interpretation of the data as seen through its alternate graphical representation.

Directions

You may preview all of the prompts by clicking on the “Next” button. The “Previous” button will enable you to return to any of the prompts in order to compose or revise your response in the space provided. Your response will automatically be linked to the prompt that is displayed.

Stimulus

Below you will find a set of data. Use the data to respond to the prompts.

Top 22 All-Time Highest Grossing Movies
(Domestic gross ticket receipts in \$millions)

Rank	Total Gross	Movie
1.	\$601	Titanic
2.	\$461	Star Wars
3.	\$435	E.T.
4.	\$431	Star Wars: The Phantom Menace
5.	\$404	Spider-Man
6.	\$357	Jurassic Park
7.	\$340	The Lord of the Rings: The Two Towers
8.	\$333	Finding Nemo
9.	\$330	Forrest Gump
10.	\$329	The Lion King
11.	\$318	Harry Potter and the Sorcerer's Stone
12.	\$313	The Lord of the Rings: The Fellowship of the Ring
13.	\$311	Star Wars: Attack of the Clones
14.	\$309	Star Wars: Return of the Jedi
15.	\$306	Independence Day
16.	\$294	The Sixth Sense
17.	\$290	Star Wars: The Empire Strikes Back
18.	\$286	Home Alone
19.	\$280	The Matrix Reloaded
20.	\$275	Pirates of the Caribbean...Black Pearl
21.	\$268	Shrek
22.	\$262	Harry Potter and the Chamber of Secrets

Prompts

- Create a box-and-whisker plot of the data.
 - Provide one meaningful interpretation of the data, other than the median, that can be made based on the box-and-whisker plot.
- Create a different graphical representation of the same data.
 - Provide a different interpretation of the data, other than the median, that is shown more clearly through the second graphical representation.

Exercise 6: Technology and Manipulatives

Introduction

In this exercise, you will use your knowledge of technology and manipulatives to identify, describe, and justify the use of manipulative and technological instructional resources to support student learning of given concepts. You will be asked to respond to two prompts.

Criteria for Scoring

To satisfy the highest level of the scoring rubric, your responses must provide clear, consistent, and convincing evidence of the following:

- the selection and detailed explanation of an appropriate manipulative instructional resource to support student learning; and
- the selection and detailed explanation of an appropriate technological instructional resource to support student learning.

Directions

You may preview all of the prompts by clicking on the “Next” button. The “Previous” button will enable you to return to any of the prompts in order to compose or revise your response in the space provided. Your response will automatically be linked to the prompt that is displayed.

Prompts

1. NOTE: For the purposes of this exercise, a manipulative instructional resource is defined as a tactile object(s) that is used to support student learning and that is accessible to all students. Manipulative instructional resources do **not** include technological devices such as calculators and computers.

- (a) Identify and describe a manipulative instructional resource to support student learning of the derivation of π .
 - (b) Provide a detailed explanation of how the resource you identified supports student learning of the derivation of π .
2. NOTE: For the purposes of this exercise, technological instructional resources include computer software applications, graphing calculators and their programs, and peripheral computer hardware devices and their software.
- (a) Identify and describe a technological instructional resource to support student learning of slope.
 - (b) Provide a detailed explanation of how the resource you identified supports student learning of slope.





Adolescence and Young Adulthood

MATHEMATICS

Assessment at a Glance

- **Choosing the Right Certificate**
- **Reviewing the Standards**
- **Demonstrating Your Teaching Practice and Content Knowledge**
- **Understanding the National Board Scoring Process**
- **Beginning Your Journey toward National Board Certification**

*National Board Certification
Promotes Better Teaching,
Better Learning, Better Schools*

Choosing the Right Certificate

The National Board Certification® process offers experienced teachers the professional development opportunity to demonstrate their knowledge, skills, and practices against high and rigorous standards. Candidates pursue certification by completing two major assessment components: a portfolio of classroom teaching practice and an assessment of content knowledge administered at a computer-based testing center.

The Adolescence and Young Adulthood/Mathematics certificate is appropriate for teachers who teach students ages 14–18+ and who know the full range of the school mathematics curriculum: algebra and functions; geometry; calculus; discrete mathematics; and statistics and data analysis. Read this document to learn the content and pedagogical knowledge you will be required to demonstrate for this certificate area and to measure your readiness to pursue National Board Certification.

Below is a set of questions to ask yourself about your teaching practice. If you answer “yes” to these questions, you are ready to apply. For eligibility requirements and application instructions, read the *Guide to National Board Certification* on the NBPTS Web site (www.nbpts.org).

If you answer “no” to one or more of these questions, you may need to discuss your teaching situation with professional colleagues, your school faculty, a National Board Certified Teacher®, your faculty support group, or a local-level administrator who is directing a National Board program.

For the portfolio, will you be able to:

- demonstrate that your teaching practice meets the Adolescence and Young Adulthood/Mathematics Standards?
- have access to a class of at least 6 students, in which 51% of the students are ages 14–18+ during the 12 months prior to the submission of your portfolio entries?
- submit student work samples and video recordings in English and/or Spanish showing your interactions with your students?
- demonstrate how you use assessment to target mathematical understanding and make sense of student performance as you help students build important conceptual connections in mathematics?
- show how you and your students engage in mathematical discourse as the whole class explores a concept, principle, technique, and/or reasoning method of mathematics?
- show how you engage students in learning collaboratively and in mathematical discourse as they explore a mathematics concept in small groups as you use technology or manipulative materials to help students?
- present evidence of how you impact student learning through your work with students' families and community and through your development as a learner and as a leader/collaborator?

For the assessment center, will you be able to demonstrate content knowledge in:

- algebra and functions?
- calculus?
- discrete mathematics?
- geometry?
- statistics and data analysis?
- various mathematical thinking processes?
- using technology and manipulatives?

Reviewing the Standards

The requirements for National Board Certification in the field of Adolescence and Young Adulthood/ Mathematics (AYA/Math) are organized into the following Standards. The ordering of the Standards is designed to facilitate understanding, not to assign priorities.

Commitment

I. Commitment to Students and Their Learning

Accomplished mathematics teachers acknowledge and value the individuality and worth of each student, believe that all students can learn and use significant mathematics, and demonstrate these beliefs in their practice.

II. Equity, Diversity, and Fairness

Accomplished mathematics teachers have high expectations for all students. They ensure equal access to the mathematics curriculum; model and promote behavior appropriate in a diverse society by showing respect and appreciation for all students; and teach students to treat one another fairly and with dignity.

Knowledge of Mathematics, Students, and Teaching

III. Knowledge of Mathematics

Accomplished mathematics teachers have a broad and deep knowledge of the concepts, principles, techniques, and reasoning methods of mathematics, and they use this knowledge to set curricular goals and shape their instruction and assessment. They understand significant connections among mathematical ideas and the applications of these ideas to problem solving in mathematics, in other disciplines, and in the world outside of school.

IV. Knowledge of Students

Accomplished mathematics teachers know and care about their students. They use their knowledge about adolescents and adolescent development, and their knowledge about how this development affects the learning of mathematics, to guide their curricular and instructional decisions. They understand the impact of home life, cultural background, individual learning differences, student attitudes and aspirations, and community expectations and values on student learning.

V. Knowledge of Teaching Practice

Accomplished mathematics teachers have an extensive base of pedagogical knowledge and use it to make curriculum decisions, design instructional strategies and assessment plans, and choose materials and resources for mathematics instruction.

The Teaching of Mathematics

VI. The Art of Teaching

Accomplished mathematics teachers stimulate and facilitate student learning by using a wide range of formats and procedures and by assuming a variety of roles to guide students' learning of mathematics.

VII. Learning Environment

Accomplished mathematics teachers help students learn mathematics by creating environments in which students are active learners, show willingness to take intellectual risks, develop confidence and self-esteem, and value mathematics. This environment fosters students' learning of mathematics.

VIII. Ways of Thinking Mathematically

Accomplished mathematics teachers develop students' abilities to reason and think mathematically—to investigate and explore patterns, to discover structures and establish relationships, to formulate and solve problems, to justify and communicate their conclusions, and to question and extend those conclusions.

IX. Assessment

Accomplished mathematics teachers employ a range of formal and informal assessment methods that are ongoing and embedded to evaluate student learning in light of well-defined goals. They employ multiple methods of assessment—including teacher-designed and external assessments, where appropriate—to diagnose learning; plan instruction; and provide opportunities for students to reflect on their strengths and weaknesses in order to revise, support, and extend their individual performance.

Professional Development and Outreach

X. Reflection and Growth

Accomplished mathematics teachers regularly reflect on what they teach and how they teach. They keep abreast of changes and learn new content in mathematics and in mathematical pedagogy, continually seeking to improve their knowledge and practice.

XI. Families and Communities

Accomplished mathematics teachers support and promote the involvement of families in their children's education. They help varied communities understand the role of mathematics and mathematics instruction in today's world, and—to the extent possible—they involve these communities in the support of instruction.

XII. Contributing to the Professional Community

Accomplished mathematics teachers collaborate with peers and other education professionals to strengthen their school's programs, advance knowledge, and contribute to improving practice within the field.

Read the Standards on the NBPTS Web site to ensure that you will be able to demonstrate your accomplishments and confidently satisfy the defined expectations for National Board Certification.

Demonstrating Your Teaching Practice and Content Knowledge

This section describes the portfolio entries and assessment center exercises for the AYA/Math certificate area.

Portfolio Entries

You will be required to submit four portfolio entries. One entry is based on student work samples, and two entries feature video recordings of student–teacher interactions in the classroom. The fourth entry relates to your accomplishments outside of the classroom—with families, the community, or colleagues—and how they impact student learning.

Following is a description of each portfolio entry.

**Entry 1:
Developing and
Assessing
Mathematical
Thinking and
Reasoning**

In this entry, you choose two instructional activities and two student responses to each activity that demonstrate how you are able to design a sequence of learning experiences that builds on and gives you insight into students' conceptual understanding of a substantive idea in mathematics, within the context of instruction that enhances students' abilities to think and reason mathematically. You also submit a Written Commentary that provides a context for your instructional choices and describes, analyzes, and reflects on your teaching.

**Entry 2:
Instructional
Analysis: Whole-
Class Mathematical
Discourse**

In this entry, you provide a 15-minute video recording of a lesson that demonstrates how you use a classroom discussion and targeted questioning to develop student understanding about an important mathematical idea. You provide evidence of your ability to engage students in mathematical discourse as the whole class investigates, explores, or discovers important mathematical concepts, procedures, or reasoning processes within a stimulating and inclusive environment that promotes student development of mathematical power. You also provide a Written Commentary analyzing the video recording and instructional materials.

**Entry 3:
Instructional
Analysis: Small-
Group Mathematical
Collaborations**

In this entry, you provide a 15-minute video recording of a lesson that demonstrates how you interact with students working in small groups in order to promote mathematical discourse and to develop student understanding about an important mathematical idea. You are required to show how you use manipulative materials or appropriate technology to provide access to or deepen mathematical understanding. You show how you model questioning strategies and mathematical thinking and reasoning processes to promote interactions between you and the students, as well as among the students in small groups. You provide a Written Commentary analyzing the video recording and instructional materials. **Entry 3 is the preselected *Take One!* portfolio entry.**

**Entry 4:
Documented
Accomplishments:
Contributions to
Student Learning**

In this entry, you illustrate your partnerships with students' families and community, and your development as a learner and collaborator with other professionals by submitting descriptions and documentation of your activities and accomplishments in those areas. Your description must make the connection between each accomplishment and its impact on student learning.

Read the *Portfolio Instructions* on the NBPTS Web site to learn more about the requirements for preparing, developing, and submitting the portfolio component of your assessment.

Assessment Center Exercises

This assessment is composed of six exercises that examine content knowledge specified in the NBPTS Standards. You are given up to 30 minutes to respond to each exercise.

Following is a description of each assessment center exercise.

- Exercise 1:
Algebra** In this exercise, you demonstrate knowledge of theoretical, graphical, and symbolic representations of functions, and the interrelationships that exist between two concepts in algebra.
- Exercise 2:
Calculus** In this exercise, you demonstrate knowledge of limits and continuity, differentiation and integration, and the ability to apply the knowledge to meaningful situations.
- Exercise 3:
Discrete
Mathematics** In this exercise, you demonstrate knowledge of sequence and series, probability, and counting theory.
- Exercise 4:
Geometry** In this exercise, you demonstrate the ability to use deductive reasoning to construct a proof, explain the interrelationships between two important concepts in geometry, and apply measurement formulas to a three-dimensional figure generated by the rotation of a two-dimensional figure about an axis.
- Exercise 5:
Statistics and Data
Analysis** In this exercise, you demonstrate knowledge of statistics and data analysis to graph a normal distribution of a given situation and find various probabilities; identify and explain types of association, effects on trend lines, and values of correlation coefficients; graph and provide a numerical analysis of given data; and explain an important statistical concept.
- Exercise 6:
Technology** In this exercise, you demonstrate knowledge of the appropriate use of technology that supports instructional goals, and errors and limitations associated with graphing calculators.

Read *Assessment Center Policy and Guidelines* on the NBPTS Web site for more information about the assessment center component of the certification process. To locate an assessment center, visit the NBPTS computer-based testing Web site (www.pearsonvue.com/nbpts/).

Selected Assessment Center Exercises

The following sections contain selected exercises administered in a previous assessment cycle. These exercises present information that candidates saw on screen at the assessment center and include instructions for using the computer, stimulus materials (if applicable), and prompts requiring responses. These exercises have been included to help you become familiar with the structure of assessment center exercises and to help you understand the scoring rubrics. The exercise prompts in this section **do not** represent actual prompts candidates will see at assessment centers in the future.

Please note that assessment center exercises cover the **entire** age range of the certificate. Be aware that you are expected to demonstrate knowledge of developmentally appropriate content across the full range of your certificate.

Sample Exercise 1: Algebra

Exercise 1: Algebra - Candidate Name

⌚ Time Remaining 29:31

Introduction

In this exercise, you will use your knowledge of algebra to explain the relationships between two important algebraic concepts. You will also create an algebraic model for a given problem and find its solution, graph the related equation(s) or inequality(ies), and interpret the graph as it relates to the solution of the problem. You will be asked to respond to two prompts.

Criteria for Scoring

To satisfy the highest level of the scoring rubric, your responses must provide clear, consistent, and convincing evidence of the following:

- a detailed and thorough description of the relationship between two algebraic concepts;
- an accurate algebraic model and solution for a given problem situation;
- an accurate sketch of the graph of the model; and
- a complete and accurate interpretation of the graph as it relates to the solution.

Directions

You may preview all of the prompts by clicking the "Next" button. The "Previous" button will enable you to return to any of the prompts. Please write your response in The Assessment Center Response Booklet.

? Help

⊙ Navigator

Next →

Retired Prompt 1

Provide a detailed and thorough description of the relationships that exist between the degree of a polynomial equation and the number of roots of the equation.

Retired Prompt 2

Use the problem described below to respond to Prompts 2(a) through 2(c).

A farmer is building a rectangular pen for his cows. Using the side of his barn as one side of the pen, he will use 390 feet of fencing for the remaining three sides. He needs to know the dimensions of a pen with the largest possible area.

- a) *Create an algebraic model for the problem and find its solution.*
- b) *Provide a graph of the model you created in Prompt 2(a).*
- c) *Interpret the graph as it relates to the solution of the problem.*

Sample Exercise 6: Technology

Exercise 6: Technology - Candidate Name

⌚ Time Remaining 29:31

Introduction

In this exercise, you will use your knowledge of mathematics and technology to explain the instructional benefits of technological resources for a given mathematics concept and to identify and explain the appropriate use of graphing calculators. You will be asked to respond to two prompts.

Criteria for Scoring

To satisfy the highest level of the scoring rubric, your responses must provide clear, consistent, and convincing evidence of the following:

- thoroughly explain a given mathematical concept;
- thoroughly explain the use of technological resources to improve student understanding; and
- accurately identify and thoroughly explain differences in the use of a graphing calculator.

Directions

You may preview all of the prompts by clicking the "Next" button. The "Previous" button will enable you to return to any of the prompts. Please write your response in The Assessment Center Response Booklet.

? Help

⊙ Navigator

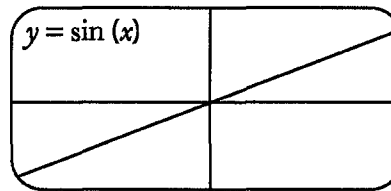
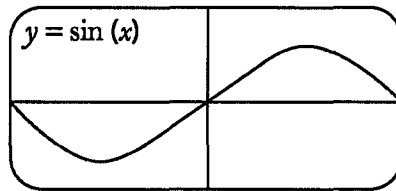
Next →

Retired Prompt 1

Explain the concept of dilations. Provide a specific example that demonstrates how you would use geometric software to improve student understanding of the concept, and explain how your example would enhance student learning.

Retired Prompt 2

The images below represent screen shots from two students' graphing calculators as they attempted to graph the equation $y = \sin(x)$. The image on the left represents the intended result. Explain what the student whose screen shot is represented on the right might have done to arrive at the result shown, and what the student needs to do differently to arrive at the intended result.



Understanding the National Board Scoring Process

All portfolio entries and assessment center exercises are scored by teachers practicing in the same content area as the assessment they are scoring. The National Board's carefully trained assessors use scoring rubrics to evaluate candidate responses. The rubrics clearly articulate the criteria that are to be applied in the evaluation of your responses. These criteria reflect the Standards that the entry is designed to measure.

Assessors use a four-level rubric to score each candidate's response as shown below.

Rubric Level	Score Range	Quality of Evidence
Level 4	3.75–4.25	Clear, consistent, and convincing
Level 3	2.75–3.74	Clear
Level 2	1.75–2.74	Limited
Level 1	0.75–1.74	Little or no

The Level 4 and Level 3 score ranges represent accomplished teaching practice. You do not have to receive Level 4 or Level 3 scores for every entry and exercise. A high score on one may compensate for a lower score elsewhere. Read the *Scoring Guide for Candidates* on the NBPTS Web site for your assessment.

Your Total Weighted Scaled Score

When your portfolio entries and assessment center exercises are completed and scored, your Total Weighted Scaled Score is computed. This is done by applying a set of weights to each of your entry and exercise scores.

For the AYA/Math certificate, these are the weights:

- 16% for each of the three classroom-based portfolio entries
- 12% for the Documented Accomplishments portfolio entry
- 6.67% for each of the six assessment center exercises

Your weighted scaled score for each entry or exercise is calculated by multiplying the raw score by the appropriate weight, shown above. Your Total Weighted Scaled Score is the sum of the weighted scaled scores for all entries and exercises plus a 12-point uniform constant. For example, if your weighted scaled score is 263, you would receive a 12-point uniform constant score, and your Total Weighted Scaled Score would be 275. This number is then compared to 275, the performance standard established by the NBPTS Board of Directors.

A candidate whose Total Weighted Scaled Score is 275 or greater is recognized as an accomplished teacher and is awarded National Board Certification. A candidate whose Total Weighted Scaled Score does not meet 275 is not yet certified and for the following two years has the opportunity to retake certain portfolio entries or assessment center exercises in order to meet the performance standard of 275.

Things to Keep in Mind

The National Board Standards for the AYA/Math certificate area are addressed within the portfolio and assessment center process. Therefore, you should keep the following in mind:

- Although the portfolio entries address many of the Standards, they may not address all of them. Standards the portfolio does not address may be included in the assessment center portion of the certification process.
- Each entry is scored independently of the others. When an entry asks for background or contextual information, be complete, since an assessor for one entry will not see your other entries.
- At each of the four levels of the scoring rubric, the same Standards-related criteria are applied. However, each level of the scoring rubric represents a difference in the quality of evidence demonstrated by the entry or exercise. For example, if “Knowledge of Students” is a Standard measured by an entry, the Level 4 rubric will refer to “clear, consistent, and convincing” evidence of that Standard while the Level 2 rubric will refer to “limited” evidence of the same Standard.
- One of the fundamental principles underlying the evaluation is that responses are scored only on what candidates are specifically asked to do. For example, if the directions specifically ask you to demonstrate how to use assessment in the featured instructional sequence, evidence supporting your use of assessment will be evaluated based on the scoring rubric. Conversely, if an entry does not require you to demonstrate how to use assessment, it will not be evaluated.

Beginning Your Journey toward National Board Certification

The first step on this journey is to make a commitment, but what does this commitment involve? First-time candidates apply and complete their assessments in an initial candidacy period as shown in the timeline below. For candidates who are not successful in their first try, there is a 24-month window, following the receipt of scores, in which to retake assessments and/or resubmit portfolio entries in order to achieve certification.

You may wish to start with the *Take One!* program that requires submission of a single portfolio entry for scoring. The preselected portfolio entry required for *Take One!* is identified as part of the portfolio entry descriptions on page 4. You can choose to transfer your *Take One!* score to National Board Certification within three years of completing the *Take One!* process. Read *Becoming a Take One! Participant* on the NBPTS Web site to learn more about the requirements.

If you choose to pursue National Board Certification, there is also a financial commitment for which support is available. Visit the NBPTS Web site to learn about federal, state, and/or local funds available to support National Board Certification and *Take One!* fees. Be sure to check with your local, district, or state educational officials for incentives (such as salary increases and bonuses) that may be offered for achieving National Board Certification.

The following timeline provides a snapshot of your schedule of commitments. Read the *Guide to National Board Certification* on the NBPTS Web site for complete information.

Certification Planner

Step	To Do	Year 1	Year 2	Year 3	Year 4
1	Send forms and fees to NBPTS:	<ul style="list-style-type: none"> application nonrefundable initial fee (\$500) all eligibility forms balance of full fee (totaling \$2,500) 	Jan. 1 —● Dec. 31		
			Jan. 1 —● Jan. 31		
2	Develop portfolio entries and submit them to NBPTS:	<ul style="list-style-type: none"> Receive portfolio box after submitting initial fees. Submit all four portfolio entries at once after submitting all fees and eligibility forms. 	Jan. 1 —● Mar. 31		
3	Schedule your assessment center exercises:	<ul style="list-style-type: none"> after submitting all fees and eligibility forms at least 30 days before the test date 		Jan. 1 —● Jun. 15	
4	Obtain your scores online:	<ul style="list-style-type: none"> Access <i>My Profile</i> to learn about your scores and certification status. 		Dec. 31	Dec. 31
					Dec. 31
5	Continue the journey:	<ul style="list-style-type: none"> If you did not achieve certification, decide whether to retake assessment center exercises and/or portfolio entries. Submit retake application and fees. Retake selected assessment center exercises. Submit selected portfolio entries. 		Jan. 31	Jan. 31
			Jan. 1 —● Jun. 15	Jan. 1 —● Jun. 15	
			Jan. 1 —● Apr. 15	Jan. 1 —● Apr. 15	

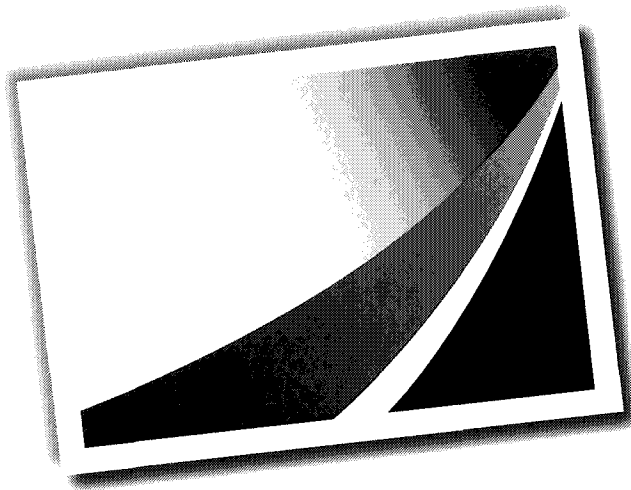
Having made the commitment, many teachers who pursue National Board Certification become role models and leaders in their schools and districts, earning a greater voice in what happens and having a very positive effect on their students' experiences. On your journey, you will benefit directly from your candidacy, taking part in what many have described as the best professional development experience of their lives.

Produced for the



by

PEARSON



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Distibution of NBCTs by School District* - FL - as of 03/10/2009 04:11:38 PM

School District Name	certified in cycle: 2006-2007	certified in cycle: 2007-2008	certified in cycle: 2009-2010	Total NBCTs
Unknown	4	2	0	945
ALACHUA COUNTY SCHOOL DISTRICT	13	13	0	153
BAKER COUNTY SCHOOL DISTRICT	0	3	0	8
BAY COUNTY SCHOOL DISTRICT	27	22	0	177
BRADFORD COUNTY SCHOOL DISTRICT	3	1	0	6
BREVARD COUNTY SCHOOL DISTRICT	91	91	0	644
BROWARD COUNTY SCHOOL DISTRICT	303	354	0	1625
CALHOUN COUNTY SCHOOL DISTRICT	1	4	0	15
CHARLOTTE COUNTY SCHOOL DISTRICT	7	7	0	67
CITRUS COUNTY SCHOOL DISTRICT	24	22	0	130
CLAY COUNTY SCHOOL DISTRICT	28	34	0	193
COLLIER COUNTY SCHOOL DISTRICT	20	15	0	144
COLUMBIA COUNTY SCHOOL DISTRICT	1	3	0	37
DADE COUNTY SCHOOL DISTRICT	191	219	0	1340
DESOTO COUNTY SCHOOL DISTRICT	1	0	0	4
DIXIE COUNTY SCHOOL DISTRICT	2	0	0	4
DUVAL COUNTY SCHOOL DISTRICT	90	81	0	490
ESCAMBIA COUNTY SCHOOL DISTRICT	23	23	0	175
FLAGLER COUNTY SCHOOL DISTRICT	6	7	0	52
FLORIDA A&M LABORATORY SCHOOL	0	0	0	1
FLORIDA SCHOOL FOR THE DEAF AND THE BLIND	3	5	0	25
FLORIDA STATE UNIVERSITY LABORATORY SCHOOL	5	3	0	18
FLORIDA VIRTUAL SCHOOL	1	1	0	14
FRANKLIN COUNTY SCHOOL DISTRICT	0	0	0	1
GADSDEN COUNTY SCHOOL DISTRICT	0	0	0	10
GILCHRIST COUNTY SCHOOL DISTRICT	4	1	0	6
GLADES COUNTY SCHOOL DISTRICT	0	0	0	3
GULF COUNTY SCHOOL DISTRICT	0	0	0	1
HAMILTON COUNTY SCHOOL DISTRICT	0	0	0	1
HARDEE COUNTY SCHOOL DISTRICT	0	3	0	8
HENDRY COUNTY SCHOOL DISTRICT	2	0	0	14
HERNANDO COUNTY SCHOOL DISTRICT	5	15	0	66
HIGHLANDS COUNTY SCHOOL DISTRICT	9	11	0	57
HILLSBOROUGH COUNTY SCHOOL DISTRICT	132	150	0	788
HOLMES COUNTY SCHOOL DISTRICT	0	3	0	7
INDIAN RIVER COUNTY SCHOOL DISTRICT	9	5	0	78
JACKSON COUNTY SCHOOL DISTRICT	1	1	0	23
JEFFERSON COUNTY SCHOOL DISTRICT	0	0	0	2
LAFAYETTE COUNTY SCHOOL DISTRICT	2	0	0	7
LAKE COUNTY SCHOOL DISTRICT	17	25	0	189
LEE COUNTY SCHOOL DISTRICT	33	43	0	228
LEON COUNTY SCHOOL DISTRICT	27	23	0	222
LEVY COUNTY SCHOOL DISTRICT	5	2	0	27
LIBERTY COUNTY SCHOOL DISTRICT	1	0	0	2
MADISON COUNTY SCHOOL DISTRICT	1	3	0	12

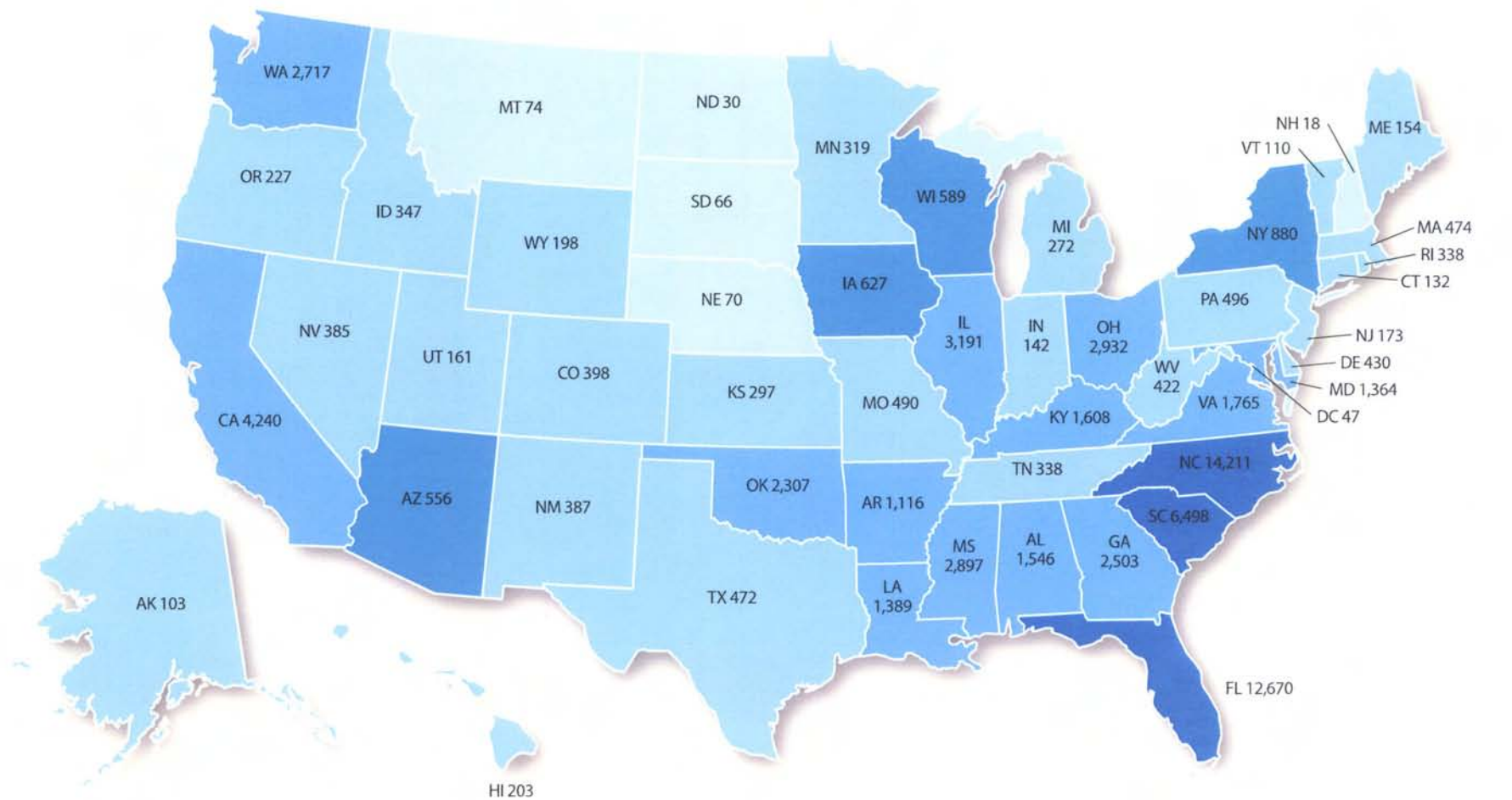
Distibution of NBCTs by School District* - FL - as of 03/10/2009 04:11:38 PM

School District Name	certified in cycle: 2006-2007	certified in cycle: 2007-2008	certified in cycle: 2009-2010	Total NBCTs
MANATEE COUNTY SCHOOL DISTRICT	32	28	0	216
MARION COUNTY SCHOOL DISTRICT	10	13	0	117
MARTIN COUNTY SCHOOL DISTRICT	10	10	0	99
MONROE COUNTY SCHOOL DISTRICT	2	3	0	46
NASSAU COUNTY SCHOOL DISTRICT	7	8	0	63
OKALOOSA COUNTY SCHOOL DISTRICT	12	23	0	120
OKEECHOBEE COUNTY SCHOOL DISTRICT	0	1	0	26
ORANGE COUNTY SCHOOL DISTRICT	92	105	0	720
OSCEOLA COUNTY SCHOOL DISTRICT	19	19	0	146
PALM BEACH COUNTY SCHOOL DISTRICT	72	129	0	710
PASCO COUNTY SCHOOL DISTRICT	36	35	0	189
PINELLAS COUNTY SCHOOL DISTRICT	65	63	0	448
POLK COUNTY SCHOOL DISTRICT	44	27	0	347
PUTNAM COUNTY SCHOOL DISTRICT	1	1	0	16
SANTA ROSA COUNTY SCHOOL DISTRICT	22	15	0	103
SARASOTA COUNTY SCHOOL DISTRICT	19	22	0	176
SEMINOLE COUNTY SCHOOL DISTRICT	43	30	0	288
ST. JOHNS COUNTY SCHOOL DISTRICT	19	10	0	169
ST. LUCIE COUNTY SCHOOL DISTRICT	20	17	0	125
SUMTER COUNTY SCHOOL DISTRICT	0	1	0	15
SUWANNEE COUNTY SCHOOL DISTRICT	4	1	0	27
TAYLOR COUNTY SCHOOL DISTRICT	0	0	0	5
UNION COUNTY SCHOOL DISTRICT	0	0	0	14
UNIVERSITY OF FLORIDA LABORATORY SCHOOL	0	3	0	12
VOLUSIA COUNTY SCHOOL DISTRICT	45	53	0	353
WAKULLA COUNTY SCHOOL DISTRICT	3	5	0	43
WALTON COUNTY SCHOOL DISTRICT	4	5	0	20
WASHINGTON COUNTY SCHOOL DISTRICT	2	0	0	6
Totals	1675	1822	0	12638

* Please note that this data represents the state in which the NBCT CURRENTLY resides or teaches, not necessarily the state they certified in.



NBPTS® 2008 Brings Record Numbers*: 9,600 New National Board Certified Teachers®



Nearly 74,000 NBCTs and Growing!



*Data based on NBPTS records and accurate as of November 22, 2008