

# **Foundations® Studies of Program Effectiveness**



## Introduction

Wilson Foundations<sup>®</sup>, for students in pre-K to 3 classrooms, incorporates the science of reading and writing to address critical foundational skills, spelling, and handwriting program in a multisensory, structured literacy approach for all students. Additionally, it significantly reinforces other English Language Arts standards, particularly vocabulary, comprehension, and writing goals, in an integrated approach. The program focuses on student development, differentiation of instruction, and active engagement for student learning.

The potency of this supplemental program is in the manner in which it overlaps skills being developed, not treating them in isolation, so that a daily 30-35 minute lesson teaches and then reinforces many corresponding skills.

Fundations is also integral to a Response to Intervention (RTI) model, providing scientifically based instruction in Tier 1 as well as an early intervention program for students at risk. RTI is a prevention based model that acknowledges the diversity of reasons for why a child might struggle to learn, with a specific learning disability being only one of several possible causes. To aid in the implementation of an RTI model, progress monitoring is built into Fundations. Thus, students requiring a more intensive program can be identified before enduring years of struggle.

The use of an RTI model allows educators to identify and intervene early to prevent students from developing more invasive reading deficits, and helps to more accurately identify those students who struggle to learn as a result of a specific learning disability (Fletcher & Vaughn, 2009)<sup>1</sup>. The overall goal of an RTI model is to prevent the domino effect of children developing weaknesses in foundational skills that, over time, give rise to deficits in higher level reading skills, such as the comprehension of complex text.

## Summary of Key Findings

Fundations is a multisensory, structured, systematic, cumulative, and explicit program with a clear and thoroughly documented research basis. Since the publication of Fundations, several impact and efficacy studies of thousands of kindergarten and first-grade students have been performed in schools across the United States.

The consensus across these studies is that, when implemented properly, students using Fundations in Tiers 1 and 2 achieve **greater gains in foundational literacy skills** compared to students using programs previously implemented by the schools. These results held with English language learners (ELL) as well.

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<sup>1</sup> Fletcher, J.M., & Vaughn, S. (2009). Response to intervention: Preventing and remediating academic difficulties. *Child Development Perspectives*, 3(1), 30-37.

Studies of **kindergarten students** who received Foundations instruction in **Florida, New York, and Massachusetts** demonstrated:

- Better learning of letter knowledge.
- Larger gains in phonological and phonemic awareness.
- Greater gains in phonological decoding.
- Reduction in risk of later reading difficulties.

**First-grade students** who received Foundations instruction demonstrated:

- Larger gains in oral reading fluency.
- Improvement in phonemic awareness (phoneme segmentation).
- Improvement in phonological decoding (reading nonsense words).
- Significant gains in basic reading skills.
- Reduction in risk of later reading difficulties.

**English language learners** (Grade 1) who received Foundations® instruction demonstrated:

- Greater gains in phonemic awareness.
- Greater gains in oral reading fluency.

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## Impact Study in School District of Indian River County, Study of Implementation at Tier 1 Indian River County, FL <sup>2</sup>

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The School District of Indian River County, Florida, partnered with Wilson Language Training® (WLT) to implement Foundations® with fidelity and sustainability in 11 elementary schools. In these locations, Foundations was implemented as the foundational skills component of the total literacy plan.

To gauge the effect of Foundations on student outcomes, an impact study was initiated, contrasting the gains in literacy skills made by kindergarten and first grade students using Foundations to the gains made by kindergarten and first grade students prior to the implementation of Foundations.

On average, kindergarten and first grade students made greater gains in literacy skills when Foundations was being used as the foundational skills program. The study included multiple regression analyses with statistical controls for demographic and behavioral factors and is sufficient for a rating of **“Promising Evidence” / Tier 3** on the U.S. Department of Education’s Every Students Success Act (ESSA) evidence scale.

**Figure 2. Foundations® Treatment and Comparison Groups for Indian River<sup>6</sup>**

	COHORT 1 (3 schools)			COHORT 2 (5 schools)			COHORT 3 (3 schools)		
	K	I	2	K	I	2	K	I	2
2010-2011									
2011-2012									
2012-2013									
2013-2014									

*Pink represents comparison group, green represents treatment group, blue represents Foundations® implementation*

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<sup>2</sup> Analysis performed by Metis Associates, 2020.

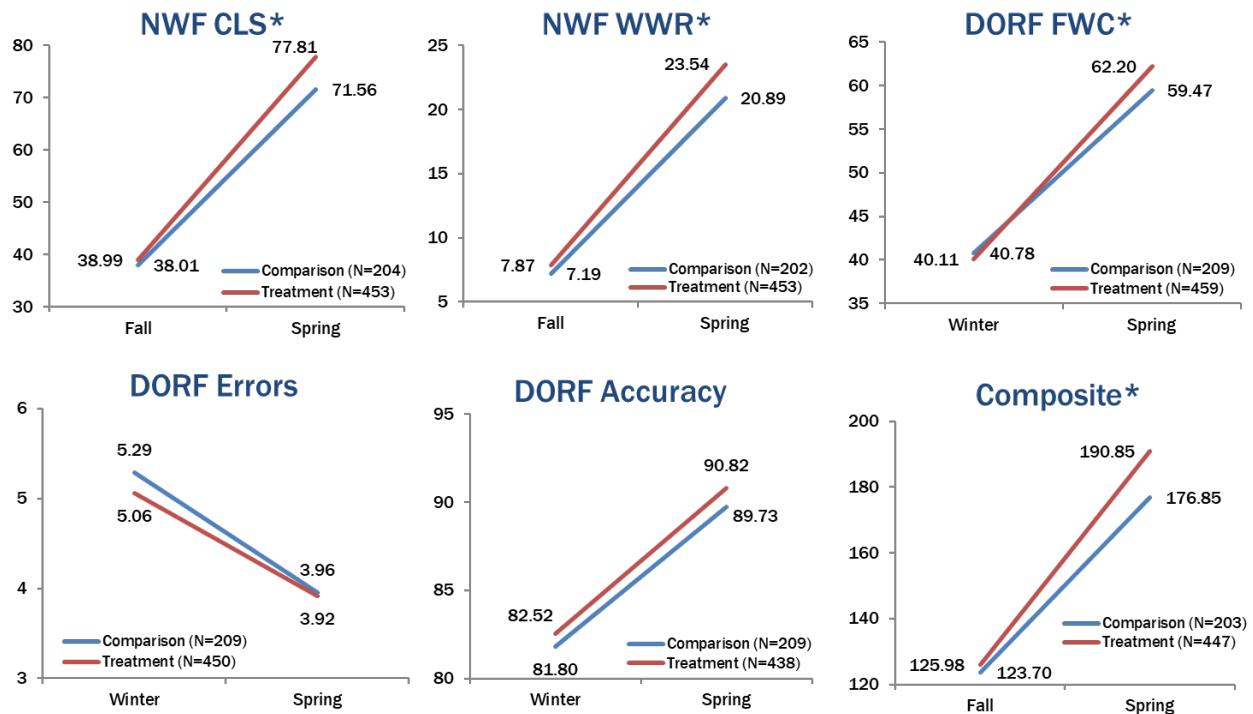
## Addressing the needs of first grade students

An independent analysis of data from 2010-2014 determined that Foundations® implementation is associated with better performance on four of six tested DIBELS scores in first grade and DIBELS Letter Naming Fluency (LNF) subtest in Kindergarten. LNF is a critically important and telling factor of the potential for developing literacy in younger students. Alphabetic Knowledge, as measured in this subtest, is a strong predictor of how easily a child will learn to read.

The analyses compared treatment and comparison performance on DIBELS at two points in time based on administration during the school year (i.e., fall to spring, winter to spring, or fall to winter). For 1<sup>st</sup> grade, comparative analyses were conducted for several DIBELS scales including:

- Nonsense Word Fluency Correct Letter Sounds (NWF CLS) – fall to spring
- Nonsense Word Fluency Whole Words Read (NWF WWR) – fall to spring
- Oral Reading Fluency Words Correct (DORF FWC) – winter to spring
- Oral Reading Fluency Errors (DORF Errors) – winter to spring
- Oral Reading Fluency Accuracy (DORF Accuracy) – winter to spring
- Composite Score (Composite) – fall to spring

### Results of Mixed Model ANOVA comparisons for 1<sup>st</sup> Grade



\* Statistically significant: NWF CLS  $p=0.023$ , NWF WWR  $p=0.039$ , DORF FWC  $p=0.006$ , Composite  $p=0.033$

The results of these comparisons showed that the difference in growth between 1<sup>st</sup> grade treatment and comparison students was statistically significant on four of the six tests (Figure 4). Students receiving 1<sup>st</sup> grade Foundations® achieved higher rates of growth on the DIBELS NWF CLS, NWF WWR, and DORF FWC subscales, as well as the overall DIBELS Composite score.

### Addressing the needs of kindergarten students

Student outcome data from a total of 3,115 kindergarten students were included in this impact study. Of these students, 1,584 attended kindergarten prior to the implementation of Foundations and received a different program for foundational literacy skills (i.e., instruction as usual). The remaining 1,700 kindergarten students attended the 11 schools after the adoption of Foundations and received foundational literacy skills instruction using Foundations.

For Kindergarten, comparative analyses were conducted for six DIBELS scales including:

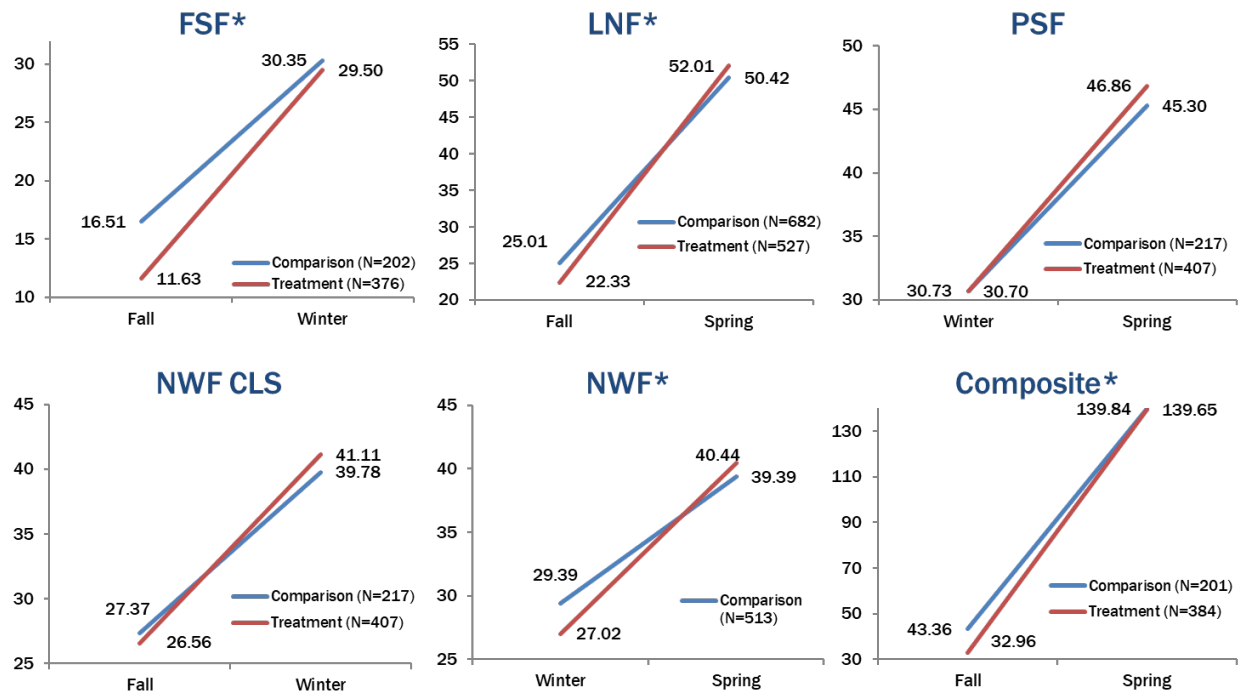
- First Sound Fluency (FSF) – fall to winter
- Letter Naming Fluency (LNF) – fall to spring
- Phoneme Segmentation Fluency (PSF) – winter to spring
- Nonsense Word Fluency Correct Letter Sounds (NWF CLS) – fall to winter
- Nonsense Word Fluency (NWF) – winter to spring
- Composite Score (Composite) – fall to spring

The results of the Kindergarten comparisons showed that the difference in growth between treatment and comparison students was statistically significant on four of the six tests. Students receiving Kindergarten Foundations® achieved higher rates of growth on the DIBELS FSF, LNF, and NWF subscales, as well as the overall DIBELS Composite score.

Although the ANOVA results essentially confirm the results of the comparisons, the regression analyses provide stronger suggestion of the effects of Foundations® on student achievement. While controlling for effects of possible demographic and behavioral (i.e., attendance) confounds, the regression analyses establish that Foundations® implementation is associated with better performance on one of six tested DIBELS scores in Kindergarten: Letter Naming Fluency.

As indicated above LNF is a critically important and telling factor of the potential for developing literacy in younger students. Alphabetic Knowledge, as measured in this subtest, is a strong predictor of how easily a child will learn to read.

## Results of Mixed Model ANOVA comparisons for Kindergarten



\* Statistically significant: FSF  $p < 0.001$ , LNF  $p < 0.001$ , NWF  $p = 0.007$ , Composite  $p = 0.002$

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## Urban Elementary School: Response to Intervention Framework Initiative, Study of Implementation at Tiers 1 & 2 NYC Department of Education Brooklyn, NY

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Working closely with the NYC Department of Education, Office of Special Education Initiatives, an RTI framework was established at an urban elementary school as a city-wide pilot initiative to improve student outcomes, reduce unnecessary referrals to special education, and to improve data-based decision making to inform instruction.

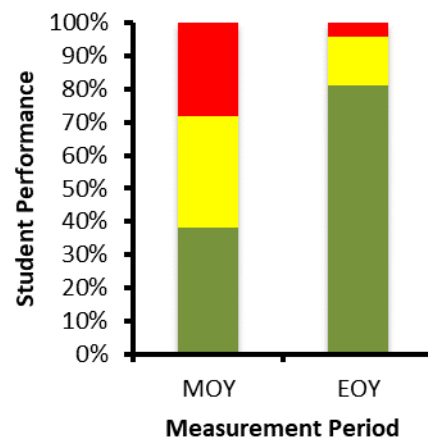
Fundations® was implemented as the evidence-based program in Tiers 1 and 2. All students in grades K-3 received daily instruction in Fundations in the Tier 1 general education classroom. Students identified for Tier 2 instruction received Fundations Double Dose instruction (at least 3 sessions weekly in small groups of 3-6 students).

To ensure successful implementation, all teachers were provided Fundations training that included workshops and coaching by Wilson trainers. During the initial year of implementation, the school performed an efficacy study to characterize the gains made by kindergarten and first grade students receiving Fundations.

### Outcomes

Figures 1 to 5 present kindergarten and first grade student performance data on the DIBELS Phoneme Segmentation Fluency (PSF) and Nonsense Word Fluency (NWF) measures obtained during Year 1 of Fundations' implementation. From the middle to the end of the year, students who were at risk for future reading deficits made substantial gains, with the majority of these students no longer classified as at risk by the end of the year.

**Figure 1. Kindergarten PSF**



**Figure 2. Kindergarten NWF**

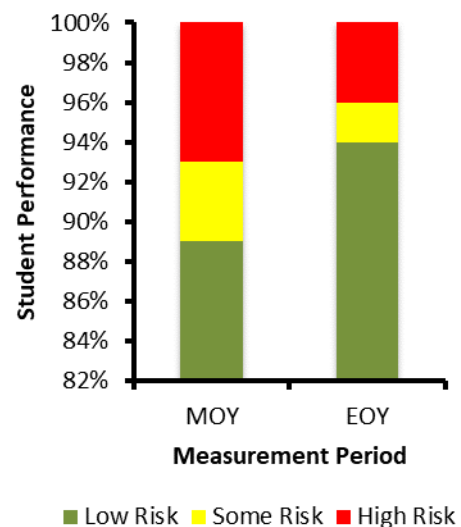




Figure 3. First Grade PSF

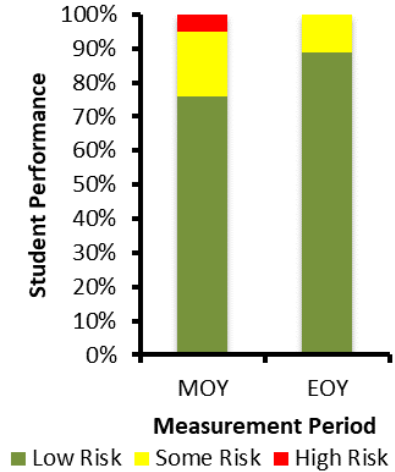


Figure 4. First Grade NWF

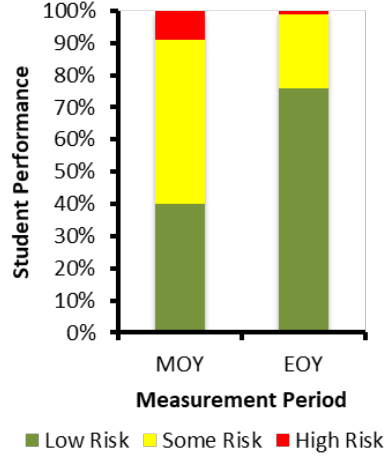
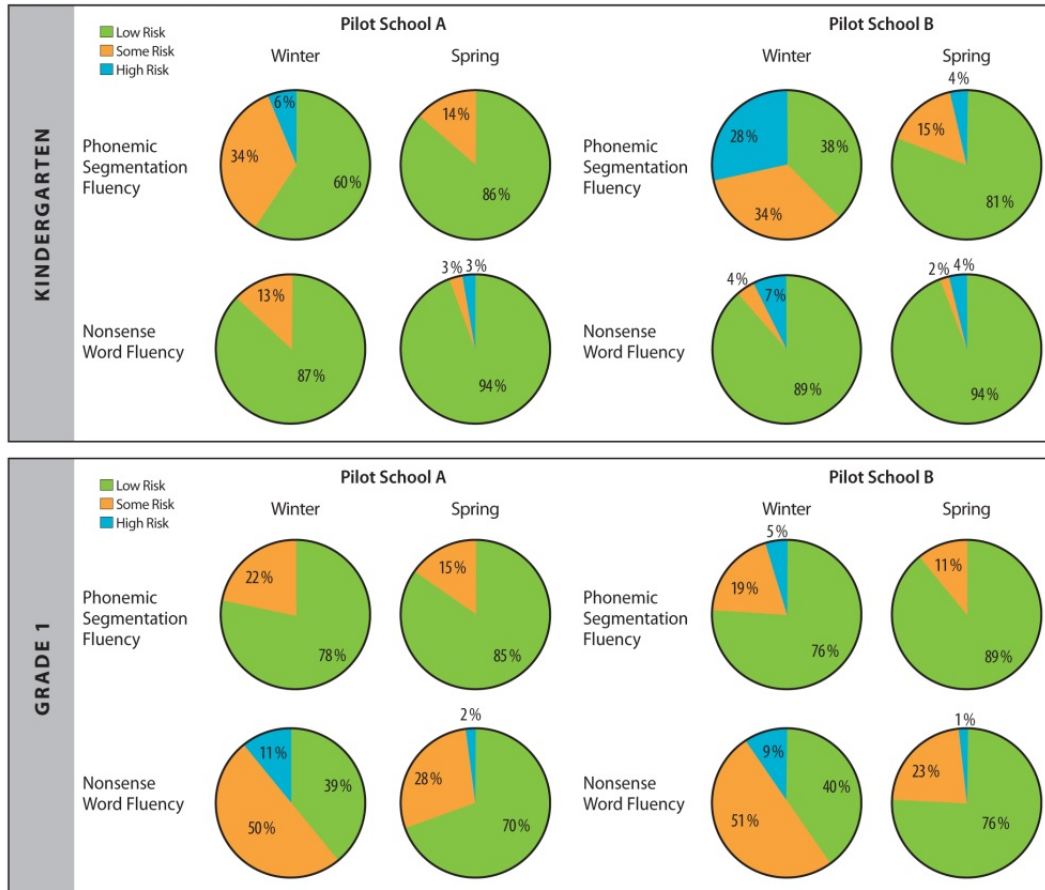


Figure 5. Student Gains in DIBELS Measures by School, Grade



Additionally, the gains achieved by the students during the initial year of implementation were sustained. As evidenced in Figure 6, after three years of implementation, there was improvement in student performance in grade 3 based on the 2008-2009 New York State ELA Assessment when compared to the year prior to the implementation of Foundations® (i.e., 2005-2006). In 2009, no students were at Level 1 (not meeting learning standards) compared to 7.8% of 3rd graders in 2005-2006. There was also a 7% increase in the number of students in grade 3 scoring at Levels 3 & 4 (meeting learning standards, Level 3; and meeting learning standards with distinction, Level 4).

**Figure 6. Student performance after three years of Foundations implementation**

Urban Elementary School, NYC, Grade 3 End of Year ELA Performance

	Level 1	Level 2	Level 3	Level 4	Level 3 & 4
0 yrs of Foundations (2005-2006)	7.8	7.8	72.5	11.8	84.3
3 yrs of Foundations (2008-2009)	0	8.6	72.9	18.6	91.4
Level 1: Not meeting learning standards Level 2: Partially meeting learning standards Level 3: Meeting learning standards Level 4: Meeting learning standards with distinction					

Due to the success of the pilot schools working with the NYC Department of Education, RTI expanded to 29 more schools throughout the city. In fall 2009, the school was selected as a National Blue Ribbon School.

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## Building and Sustaining Capacity for Evidence-Based Literacy Instruction Leads to Improved Student Performance: Implementing a Multi-Tiered System of Support Salisbury, MA

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School leadership was determined and committed to ensuring all students met reading benchmarks. One component of the school's solution was the selection of an evidence-based supplemental reading and spelling program, Wilson Foundations®. The school developed a literacy plan to implement Foundations within an RTI Framework. Foundations was implemented as the evidence-based program in Tiers 1 and 2. All students received standard Foundations daily instruction in the Tier 1 general education classroom. Students identified for Tier 2 instruction received Foundations Double Dose instruction.

### Professional development and support

The school emphasized teaching the core curriculum with fidelity through collaborative work by data coaches and professional development for teachers and reading specialists. Teachers and reading specialists were fully trained in Wilson Foundations with workshops and received periodic implementation and coaching support and fidelity checks by a Wilson Literacy Specialist. Foundations Facilitator development was included resulting in school-based support provided by this individual to coach and co-teach with new teachers. Teachers were provided opportunities for peer observation and observing a more experienced teacher.

### Outcomes

Student benchmark data from the DIBELS were available for a kindergarten class receiving Foundations instruction. As depicted in Figure 1A (next page), the kindergarten students in this class achieved statistically significant growth in their composite DIBELS scores over the course of the year,  $F(2, 50) = 183.29$ ,  $MSE = 534.62$ ,  $p < .001$ ,  $\eta^2 = .89$ . From the beginning to the end of the year, students' composite DIBELS scores grew over 4 standard deviations,  $d = 4.46$ . In addition, as depicted in Figure 1B (next page), over half of the incoming class of kindergarten students was recommended to receive intensive or strategic instruction based on their DIBELS composite scores, but by the end of the year, 81 % of class was recommended to receive core instruction.

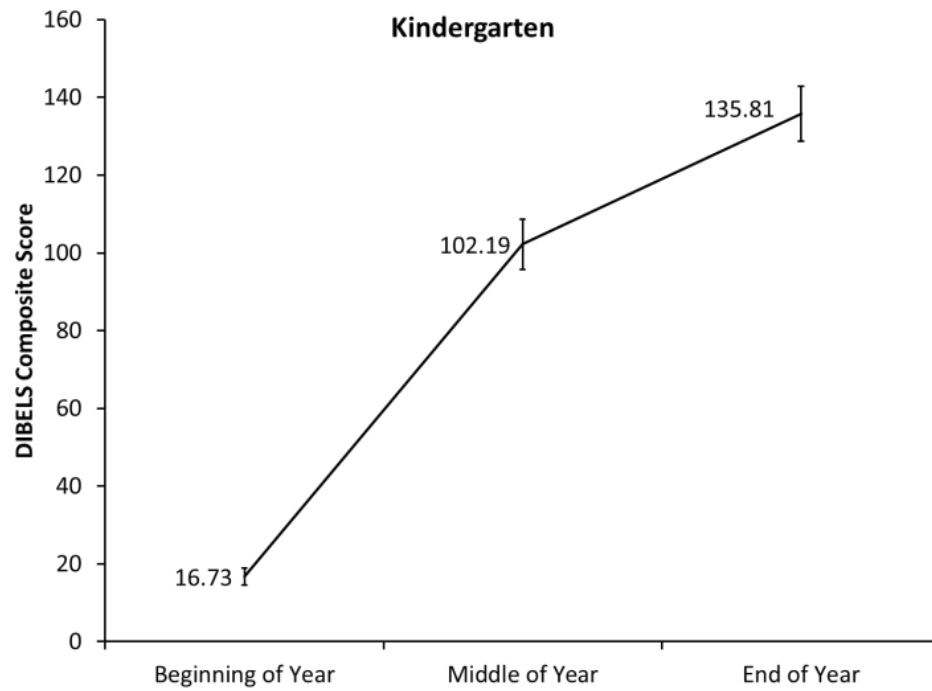


Figure 1A

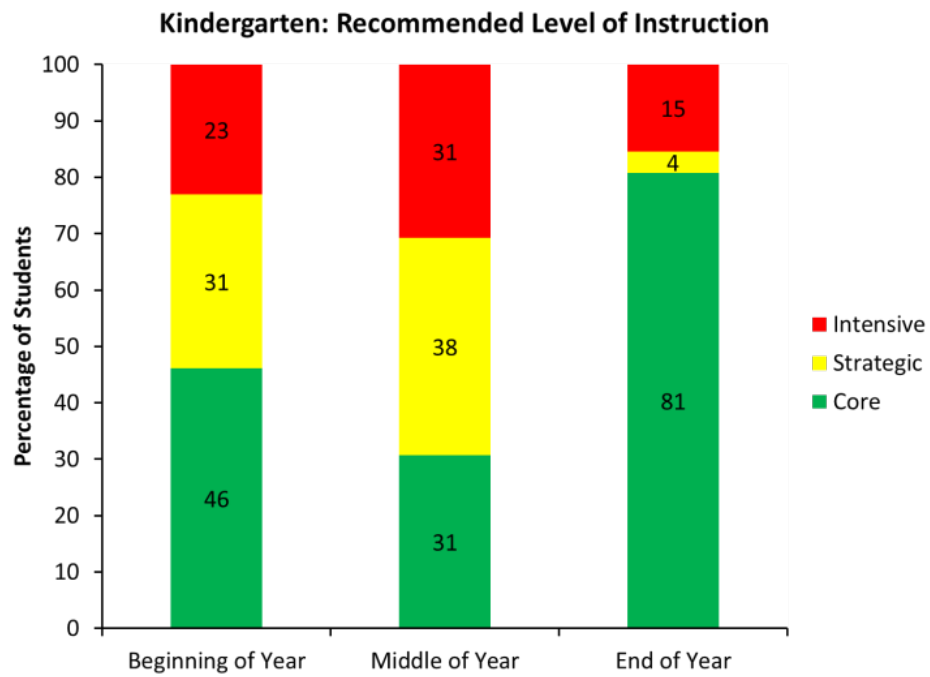


Figure 1B

Benchmark data were also available for a first-grade class receiving Foundations® instruction. As depicted in Figure 2A, statistically significant growth was observed in the composite DIBELS scores of these students,  $F(2, 32) = 21.78$ ,  $MSE = 1698.84$ ,  $p < .001$ ,  $\eta^2 = .58$ . From the beginning to the end of the year, students' composite DIBELS scores grew over two standard deviations,  $d = 2.12$ .

In the middle of the first grade, students began to complete the Oral Reading Fluency test of the DIBELS. This test provides both measures of number of words read correct and a percent accuracy measure.

As depicted in Figure 2B, students made statistically significant gains from the middle to the end of the year in the number of words they read correct increasing on average over 1.5 standard deviations,  $t(16) = 9.03$ ,  $p < .001$ ,  $d = 1.66$ .

Moreover, the students made significant gains in word reading accuracy, improving on average almost 2 standard deviations (see Figure 2C),  $t(16) = 9.91$ ,  $p < .001$ ,  $d = 1.82$ .

In addition, as depicted in Figure 2D, over 80 % of the incoming first grade class was recommended to receive intensive instruction based on their DIBELS composite scores. By the end of the year, 71 % of the students in this class were recommended to receive core instruction.

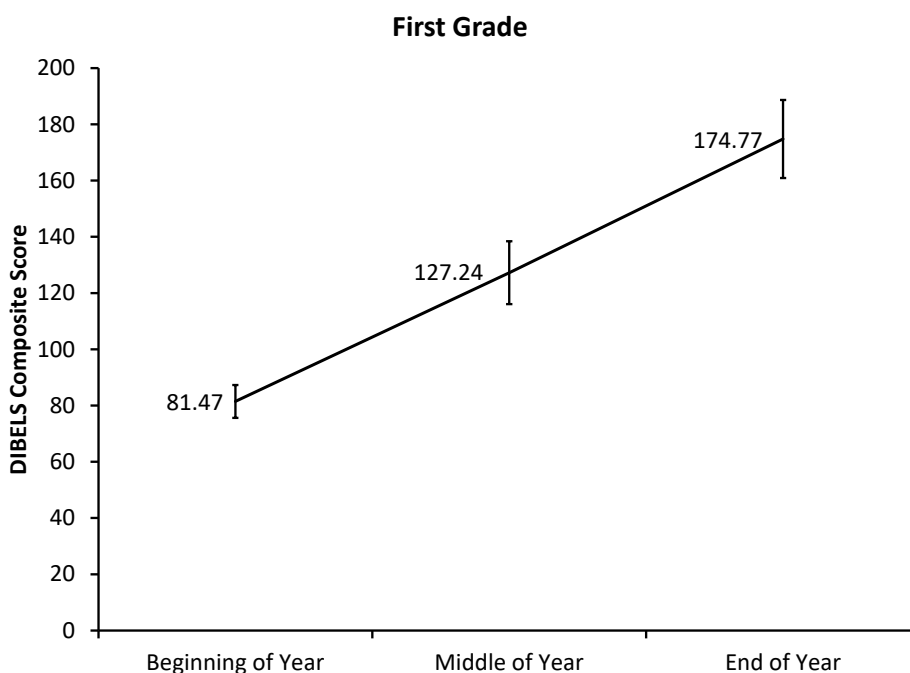


Figure 2A

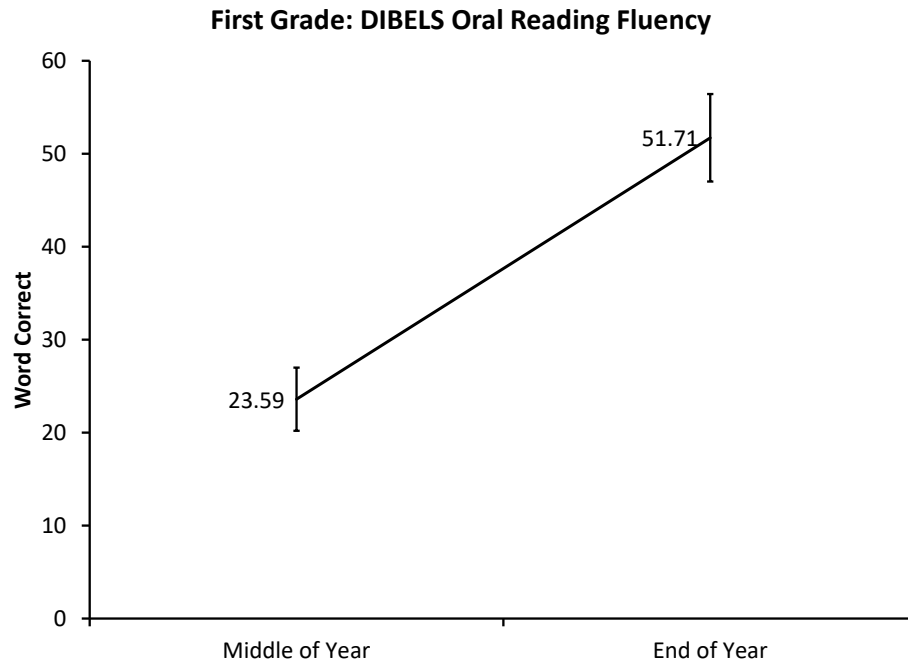


Figure 2B

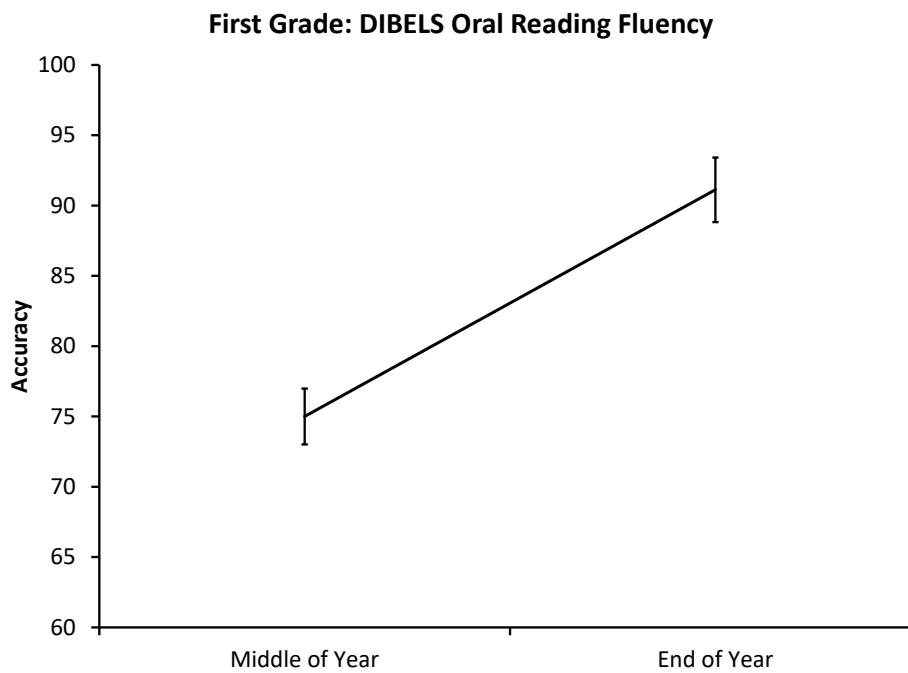


Figure 2C

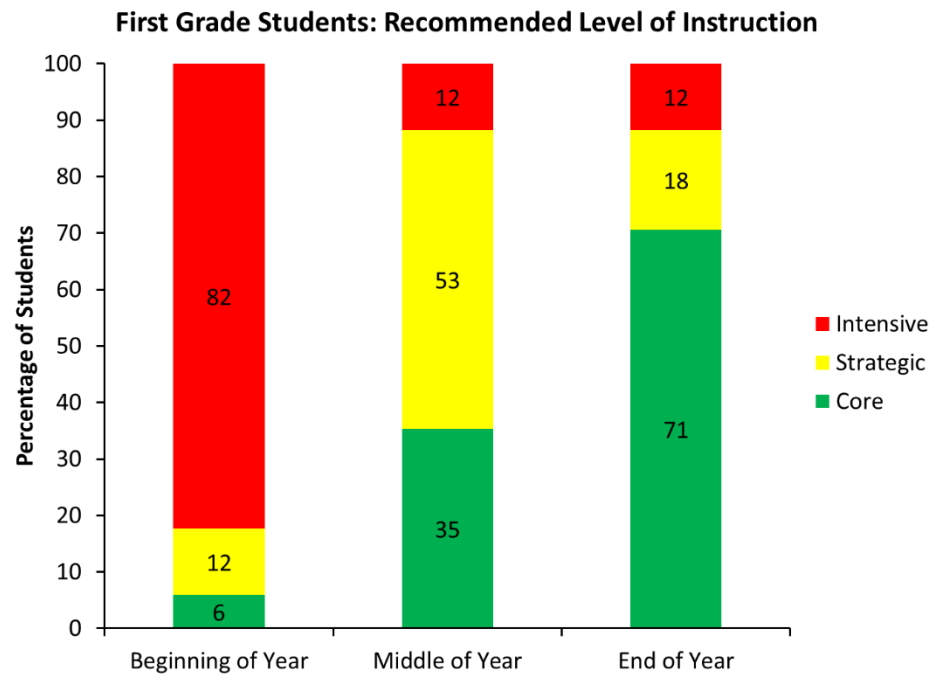


Figure 2D

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## Intensive Reading and Writing Project, Forestdale Elementary School Sandwich, MA

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Students identified as “at-risk” for reading failure were placed in an Intensive Reading Writing classroom in a regular classroom setting. The students received Foundations® as the primary decoding and spelling program. A pretest posttest analysis of the Woodcock Johnson III showed that Foundations students made statistical significant gains their Basic Reading Skills gaining 1.4 grade levels on average,  $t(17) = 13.41$ ,  $p < .001$ .

At the end of first grade, 16/18 students achieved at or above grade level Basic Reading skill. (A grade equivalent score of grade 2 or higher.) Additionally, no Foundations students had deficits, and 15/18 students had established performance on the end of year Phoneme Segmentation and Nonsense Word Fluency DIBELS tests (See Figure 1A.)

Foundations was also used in the general education kindergarten classroom. A treatment and control group was randomly assigned. A higher percentage of students in the Foundations classroom met the “established” benchmark on the DIBELS assessment for the end of year goals compared to the control group.

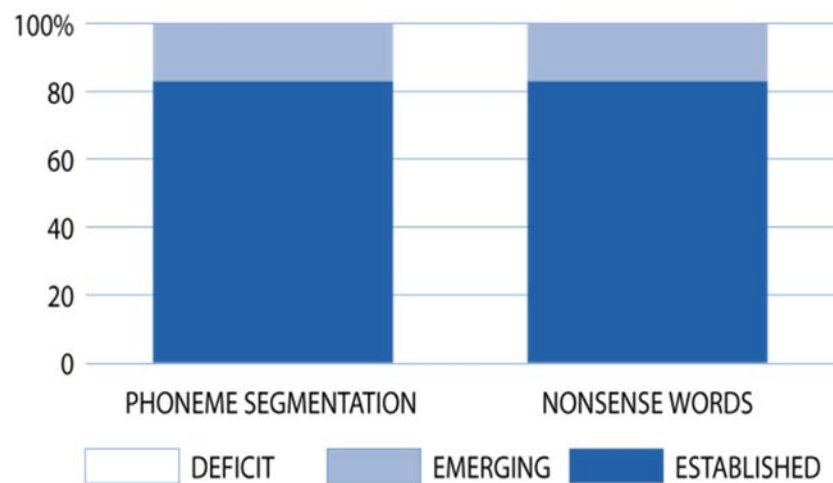


Figure 1A



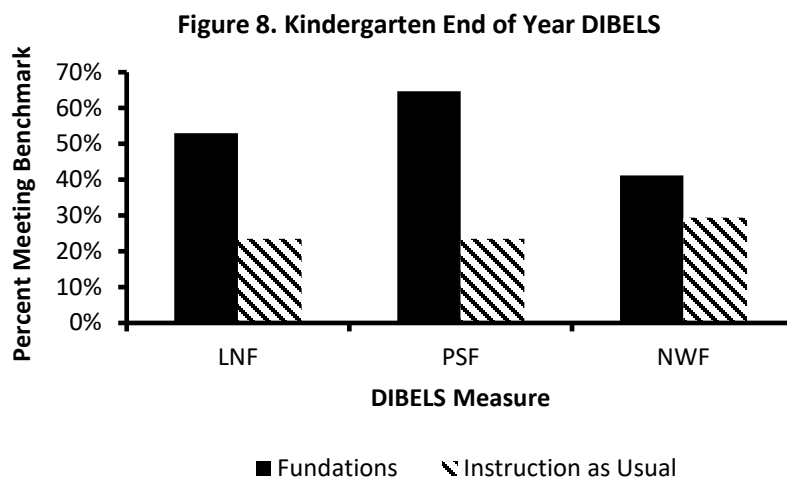
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## Small Town Elementary School: Study of Implementation at Tiers 1 & 2 Northeast, US

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An elementary school located in a small town in the northeastern United States adopted Foundations® as the phonics and spelling component of its ELA block in general education kindergarten classrooms. In addition, the school adopted Foundations for use with students identified as “at-risk” for reading failure who were placed in an intensive reading and writing classroom. The school assessed the effect of Foundations on the success of these students in a pair of studies.

To assess the success of Foundations in meeting the needs of their general education kindergarten students, the school conducted an impact study. It randomly assigned 17 kindergarten students to receive Foundations Level K, and 17 kindergarten students to receive instruction as usual. End-of-year DIBELS scores were compared between the two groups of students. Relative to students in the instruction-as-usual condition, a larger percentage of students in the Foundations condition scored at or above benchmark on the Letter Naming Fluency (LNF), Phoneme Segmentation Fluency (PSF), and Nonword Fluency (NWF) measures of DIBELS as illustrated in Figure 8.

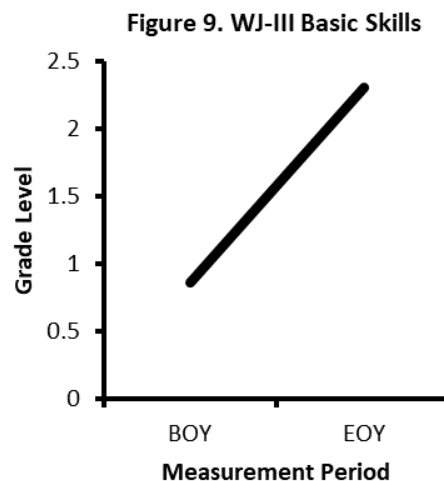


## Meeting the needs of at-risk students (Tier 2)

First grade students identified as “at-risk” for reading failure were placed in an intensive reading and writing classroom, receiving Foundations® as their primary decoding and spelling program. An efficacy study of Foundations was performed, and student data were collected at the beginning and end of the school year using the Woodcock Johnson III.

As illustrated in Figure 9, students made significant gains in their Basic Reading Skills from the beginning to the end of the school year, gaining on average 1.4 grade levels. By the end of first grade, 16 out of 18 students had Basic Reading Skills at or above grade level.

Additionally, 15 out of 18 students had scored at or above benchmark on the end-of-year DIBELS Phoneme Segmentation Fluency and Nonsense Word Fluency measures.



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## East Gloucester Elementary School Gloucester, MA

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A standardized test (Word Identification and Spelling Test) was administered by school district personnel to determine if students were on grade level for reading and spelling for a group of Massachusetts students that received Foundations® Level 1 to 3 in the general education classroom. Analysis of East Gloucester third grade student data demonstrated that 94% of the students were reading real words at or above grade level (75% at grade 5 or higher; 100% of the students were reading irregular words at or above grade level (94% at grade 5 or higher), Additionally, 97% of the students were spelling words at or above grade level (94% at grade 5 or higher); 100% of the students were spelling irregular words at grade level (81% at grade 5 or higher).

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## Urban Elementary School Worcester, MA

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This institution is one of several in the city that had received a Level 4 performance rating (lowest) by the State of Massachusetts. Foundations was implemented in 2010-11 and achieved the following results in Kindergarten.

- By the 2014-15 school year, 82% (103) of the school's Kindergarten students (n=125) had reached benchmark on the DIBELS PSF measure, an increase of 32 percentage points over its pre-Foundations results.
- 65% of Kindergarten students (n=81) reached benchmark on the NWF-CLS measure, an increase of 15 percentage points over its previous Foundations results.
- Only 44% of kindergarten students (n=55) were identified as needing intensive intervention based on the DIBELS PSF and DIBELS NWF-CLS; a reduction of 30 percentage points and 11 points respectively after using Foundations.

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## Primary Adaptive Classrooms, Baltimore County Public Schools Baltimore, MD

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Fundations® K and 1 were piloted in several elementary schools across the district to supplement the adopted phonics program, which was not meeting the needs of students in the Primary Adaptive programs.

Those in the Primary Adaptive self-contained classrooms with students ranging in grades 1-3 received Fundations Level 1 instruction. The lesson was delivered daily to the whole class (about 12-15 students) and then students were divided into small groups for an additional 20 minutes of Fundations activities depending on their skill level and needs.

There were 45 students assigned to the control group and 68 students in the Fundations experimental group. Data was collected and reported by Baltimore County staff at the end of the school year.

Students in the Fundations experimental group had higher Word Attack and Word Identification scores at the end of the year relative to the control group,  $t(111) = 3.14$ ,  $p = .001$ ;  $t(111) = 1.81$ ,  $p = .04$  (see **Figure 1A**).

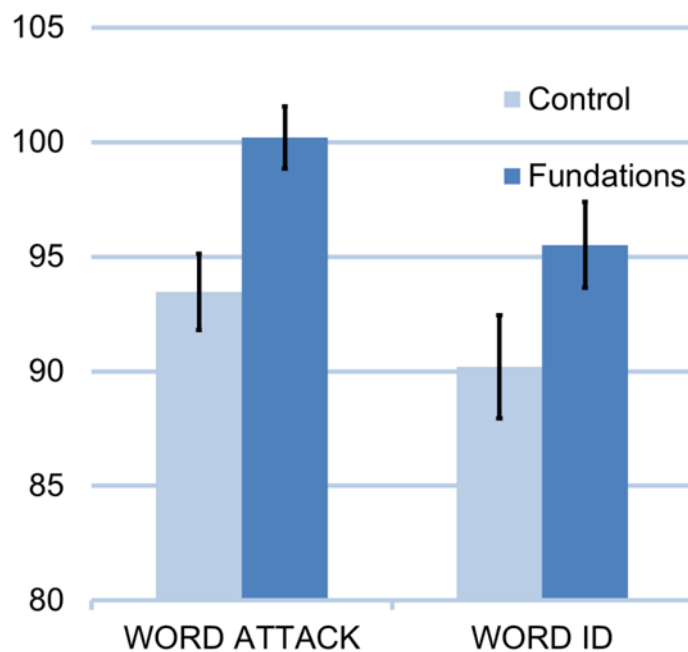


Figure 1A

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## Reading First Classrooms, Broward County Public Schools Broward County, FL

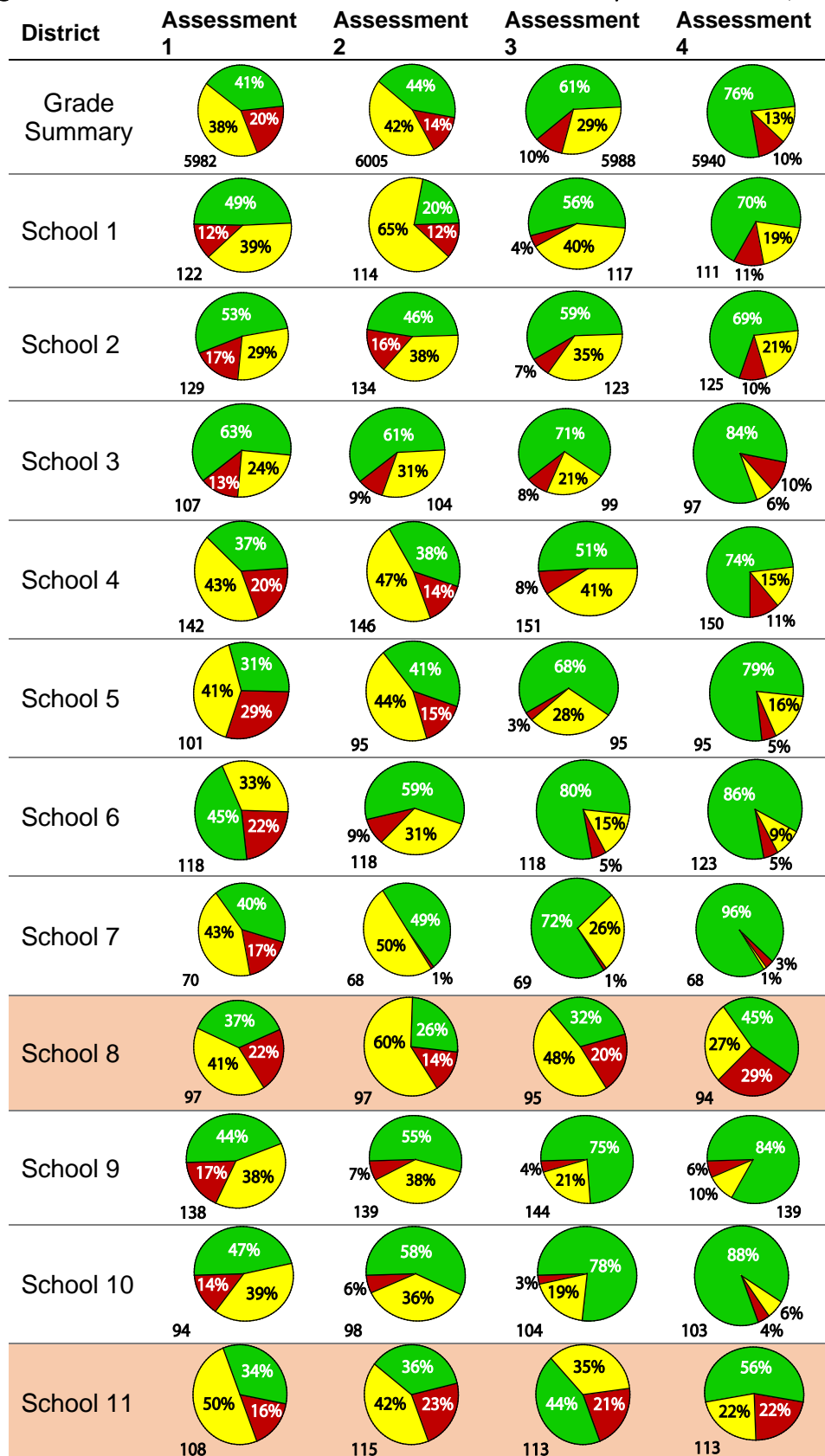
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Foundations is the suggested kindergarten program that may be used in place of the basal phonics component for the 52 Reading First Schools of Broward County. It is delivered during small-group instruction as part of the uninterrupted 90-120 minute reading block.

The following samples from the Florida Progress Monitoring & Reporting Network, show the quarterly Recommended Level of Instruction for the 2005-2006 school year.

The top row shows the District Kindergarten Grade Summary, with subsequent rows representing individual schools. Schools 8 and 11 were **not** using Foundations with fidelity and are highlighted in red in the figure that follows. (See following page.)

# Kindergarten Classes Across 11 Schools within Broward County Public Schools, FL



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## Freedom Shores Elementary School

### Palm Beach County, FL

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Freedom Shores Elementary is a Title I school in Palm Beach County, Florida. Foundations® is taught to all K and 1 students for 30 minutes daily, with intervention lessons for students needing additional support.

District-level Wilson trainers credentialed to support Foundations provided workshops and coaching. A Foundations Facilitator was developed at the building level during a year-long program with a Wilson Literacy Specialist.

#### Outcomes

Freedom Shores Elementary continues to receive an “A” Report Card from the state of Florida. Due to its success, it was chosen as a Foundations Demonstration Site for the district (which has 140 elementary schools). A summary of end of year data for 2011 noted the following:

- **Grade K Data Analysis:** As a result of one year of Foundations instruction, 81% (107) of all students in grade K were at or above grade level as determined by the District’s Pupil Progression.
- **Grade 1 Data Analysis:** As a result of two years of Foundations instruction, 90% (77) of all students in grade 1 were at or above grade level as determined by the District’s Pupil Progression.

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## Program Review by Florida Center for Reading Research (FCRR)

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Foundations® was reviewed by the FCRR research committee. Under the direction of Dr. Joseph Torgesen, this center was one of three national technical assistance centers to support the implementation of research-based reading instruction. FCRR's report outlines how Foundations is aligned with research and lists the strengths and weaknesses. No weaknesses were noted.

Below is a summary from the report, which can be found at [www.fcrr.org](http://www.fcrr.org).

### Strengths of the Foundations Program

- Foundations is highly systematic, both within lessons and across lessons.
- Foundations is derived from research that has been proven to be successful with a wide variety of learners.
- Multisensory methods are employed in teaching children sounds, their representative letters, and their combination into words, phrases, and sentences.
- Students learn a variety of techniques to analyze multisyllabic and unknown words, and words with spelling options.
- Frequent practice and review builds mastery in students.
- Foundations can be taught in a 1:1 setting, a small group, or to a whole class, and can be used for preventative, intervention, or immediate, intensive intervention purposes.
- Many lesson activities and games are geared toward whole class or group participation.
- Materials are very teacher-friendly, and the Wilson Learning Community gives excellent demonstrations of each of the teaching activity types used in the program. A teacher can thus review each technique as needed.

### Weakness of the Foundations Program

- None were noted.

The FCRR summary rating for the Foundations program is as follows:

Program	Type of Program	Grade Reviewed	Reading Components				
			Phonemic Awareness	Phonics	Fluency	Vocab	Comprehension
Foundations	Supplemental or Intervention Program	K-3	+++	+++	+++	+++	++

#### Key

- + some aspects of this component taught and/or practiced
- ++ most aspects of this component taught and/or practiced
- +++ all aspects of this component taught and/or practiced
- n/a Not Addressed in this program. In other words, this element of reading is not a goal of this program.