# Detailed Description of Educate Kids' Quoted Line Items

**Diagnostic Test Pareto Analyses**

- Generate Paretos for individual students.
- Compile aggregate Paretos by teacher by class and by grade.
- Compile additional aggregate Paretos, as requested (for example, by demographics or by other metrics of interest).
- Customized printing & assembly of analysis materials for each teacher.
- Summary reporting for administrators.

**Problem Sets and Practice Tests**

- Access to database of approximately 6,000 FCAT-like math problems.
- Access to limited database of FCAT-like reading and science problems.
- Define a 7-week remediation plan based on identified student needs.
- Supply customized problem sets & practice tests based on the 7-week remediation plan.
- Provide problem set tracking worksheets for each teacher for each of their classes.
- Provide additional materials for individualized tutoring, as needed.

**Master Table Set-up**

- Collect and upload (to EK SQL database) student identifier and demographic information required for customized reporting and for generation of additional aggregate Paretos.
- Collect and upload historical test information required for Learning Curve and Predictor analyses.
- Maintain tables to reflect updated information, as required, in August and January.

**Learning Curve Analysis**

- Generate a learning curve for each student.
- Provide quartile analysis to enable study of how students group by learning "rate".
- Assist teachers and administrators in analysis of the data.

**Predictor Analysis**

- Generate a predicted March FCAT score for each student.
- Identify students on the cusp of the pass/fail line ("push" students).
- Assist teachers & administrators in analysis of the data.

**Materials Tailored to "Push" Students**

- Generate Paretos for students targeted for additional remediation.
- Supply problem tests & practice tests based on their identified needs.

**Teacher Training and Support**

- Present overview of program to teachers.
- Provide individualized, face-to-face teacher training about how the program works and how to best implement the different aspects to fit their needs.
- Review of individual student and aggregate Paretos with teachers.
- Provide customized problem sets and practice tests for special needs (slower or faster) students.
- Share best practices on program implementation and test taking skills.

**Administrator Training and Support**

- Present overview of program to administrators.
- Provide individualized, face-to-face administrator training about how the program works and how to best implement the different aspects to fit their needs.
- Provide and review customized aggregate Paretos, as requested.
- Provide additional customized reporting for district and state quarterly reports.
- Provide independent calculation of school performance (school grade) in advance of official release.
- Share best practices on program implementation.

# Educate Kids
# Program Description

Prepared by Anne Marks
Educate Kids

## A. Description of Intervention

Educate Kids is a research-based FCAT improvement program geared primarily toward improvement of scores on the mathematics portion of the test. It emphasizes data-driven decision making as a means of directing focused remediation toward each student's specific "opportunities for improvement".

The Educate Kids program is comprised of two major components. First each student's major opportunities for improvement are identified through analysis of the District-administered SSS Diagnostic tests. Next, Problem Sets and Practice Tests specific to each students needs are provided for remediation.

Any student who has not successfully passed the FCAT will participate, with special consideration given to those students who take the October FCAT Retake test.

## B. History of the Program in the School District of Palm Beach County

The Educate Kids methodologies were developed by Dr. Anne Marks in 2004 when she worked as a volunteer math tutor at Toussaint L'Ouverture High School for Arts and Social Justice (TLHS) in Delray Beach, Florida. The program has been run at TLHS since.

A 10 school Pilot program is planned for the 2006-07 school year. Table 1 provides a comprehensive list of participating schools, including the number of teachers participating in the program and the number of students supported.

Table 1: Number of Teachers and Students participating in Educate Kids program for school year 2006-2007.

| School Name | School Number | Number Students Tested | Number Math Teachers |
|---|---|---|---|
| Boca Raton High School | 961 | 981 | 18 |
| Forest Hills High School | 581 | 945 | 15 (est.) |
| Howell L. Watkins Middle School | 121 | 991 | 15 (est.) |
| Lake Shore Middle School | 1232 | 988 | 15 (est.) |
| Lake Worth High School | 691 | 1412 | 15 (est.) |
| Pahokee Middle/Sr. High School | 1771 | 676 | 15 (est.) |
| Palm Beach Lakes Community High | 1951 | 1122 | 15 (est.) |
| Royal Palm Beach Community High | 2331 | 1105 | 15 (est.) |
| Santaluces Community High | 1611 | 1060 | 15 (est.) |
| William T. Dwyer High School | 2201 | 952 | 15 (est.) |
| Totals: | | 10232 | 153 |

## C. Purpose, Goals, and Outcome Objectives of Program

The purpose of the Educate Kids program is to assist teachers in preparing students for the FCAT by providing them with the analysis capability to allow data-driven decisions to be made.

**Goal 1**: Schools will improve their achievement level among accountability students by one grade level according to the standards of the Florida A+ plan.

**Objective 1.1**: The percentage of students scoring Level 3 or above will be significantly greater than the percentage of students scored Level 3 or above last year. The data will be evaluated using a two-sample t-test with an alpha risk of 0.01 (99% confidence)

**Objective 1.2**: The percentage of students with Learning Gains in Math will be significantly greater than the percentage of students with Learning Gain in Math last year. The data will be evaluated using a two-sample t-test with an alpha risk of 0.01 (99% confidence)

**Objective 1.3**: The percentage of students in the lowest 25% in Levels 1, 2, and 3 with Learning Gains in Math will be significantly greater than the percentage of students in the lowest 25% in Levels 1, 2, and 3 with Learning Gains in Math last year. The data will be evaluated using a two-sample t-test with an alpha risk of 0.01 (99% confidence)

## D. Financial Components of the Program

Educate Kids will run the 10 school Pilot program with funding provided by Dr. Anne Marks. Educate Kids has applied for several grants through the U.S. Department of Education, but if awarded that money would not be available until next spring.

The cost to operate the 10 school Pilot program is $125,644.56. Table 2 provides the summary breakdown analysis. There are 10,232 students participating at the 10 schools, so the cost to run the Educate Kids program for the 2006-07 school is $12.28 per student per year.

Table 2: 2006-2007 Educate Kids Expenses

| | |
|---|---|
| Salaries Sub-Total | $73,333.26 |
| Systems Sub-Total | $23,215.70 |
| Public Relations Sub-Total | $2,000.00 |
| Conferences Sub-Total | $7,115.60 |
| Miscellaneous Sub-Total | $19,980.00 |
| Total 2006-2007 | $125,644.56 |

## E. Program Implementation

### 1. Instruction-Related Program Descriptors

School Administration Responsibilities:

1.1 All students, who will be taking the Spring FCAT, will take the District-administered Fall and Winter SSS Diagnostic tests.
1.2 DREA is notified to have student-level test results released to the principal so that the data is available to Educate Kids for analysis.
1.3 Students are assessed each year using the State-administered FCAT Mathematics test.

Program Teacher(s) Responsibilities:

1.4 Provide rosters of students to Educate Kids.
1.5 Administer 2005 Released FCAT test to October Retake students for early analysis.
1.6 Make 5-10 minutes available at the beginning of class during the two seven week Intensive Remediation sessions for students to work Problem Sets on their major opportunities for improvement.
1.7 Make space available in their classrooms for box containing student Problem Sets and Practice tests.
1.8 Provide feedback to Educate Kids on implementation issues.

**2. Product-Related Program Descriptors**

Department of Research and Evaluation Responsibilities:

2.1 DREA will provide the SSS Diagnostic student-level results to the school principals within two (2) weeks of the administration of the tests.

School Administration Responsibilities:

2.2 Paper will be provided for Educate Kids to create Problem Sets and Practice Tests for the students.
2.3 Calculators in good working order will be available for the students.

**3. Service-Related Program Descriptors:**

School Administration Responsibilities:

3.1 Teachers will be available for training on the operation of the Educate Kids website.

# Educate Kids
# Literature Review

Prepared by Anne Marks
Educate Kids

## A. Setting Appropriate Goals and Objectives for Targeted Students

For hundreds of years scientists and researchers have been using scientific methodologies developed by Pareto (1897), Ford (1926) and Shewhart (1939). These methodologies: Pareto Analysis, Root Cause Analysis and Process Oriented Thinking are used routinely in industry today in the implementation of Continuous Improvement Methodologies (CIM).[1][2][3][4][5]

These same scientific methods have been applied to educational data by Dr. Anne Marks (2006) of Educate Kids to enable teachers to make data-driven decisions about student remediation.

## B. Goals and Objectives of Similar Programs

Similar programs only supply information on the breakdown of problems based on Strand, Standard and Benchmark. These programs do not drill down the individual student's specific opportunities for improvement to allow a teacher to dial-in each student's remediation. Educate Kids is unique in the application of advanced scientific methods to the analysis of standardized test analysis. Our described system and method are "Patent Pending" as it is currently the subject of a filed patent application with the United States Patent and Trademark Office."

## C. Evidence of Success by Educate Kids

Educate Kids has been run at two schools: Toussaint L'Ouverture High School for Arts and Social Justice (TLHS) in Delray Beach, Florida and the North Warren Central School (NWCS) in Chestertown, New York. TLHS improved their school grade from an "F" to a "C" in the first year running the program and have sustained the improvements for the past two years. NWCS was recognized by the State of New York Department of Education as a "High Performing / Gap Closing" school. Only 18% of all New York schools achieved this recognition.

## D. Ensuring Successful Implementation

The following are key support and implementation issues:

- Active support and involvement from school based administration for program support and individual student data delivery.
- Support of DREA in delivering SSS Diagnostic test results in a timely manner.
- Bi-monthly meetings with key teacher team leaders for feedback on implementation issues or successes.
- Timely delivery and organization of remediation materials at the schools by Educate Kids Implementation Specialists.

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[1] SEMATECH Statistical Methods for Efficient Management, Austin: Sematech Technology Transfer, 1991.
[2] Spanos, Costas J. Statistical Process Control in Semiconductor Manufacturing, Berkley: University of California, 1985.
[3] Motorola Six Sigma Process Control: Guide to Standardized Process Control Practices, Chicago: Motorola, Inc., 1993.
[4] SPC at ADI: An Introduction to Statistical Process Control, Boston: Analog Devices, Inc., 1992.
[5] Intermediate Problem Solving Techniques: Quality and Customer Satisfaction, Boston: Digital Equipment Corporation, 1987.

## E. District Program Recommendation

It is recommended that a Pilot program be run at 10 schools in the Palm Beach School District to validate that the Educate Kids program can be successfully implemented in a variety of socio-economically diverse middle and high school programs.

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*Data-driven Instruction to Raise Student Achievement Levels*

www.educatekids.com

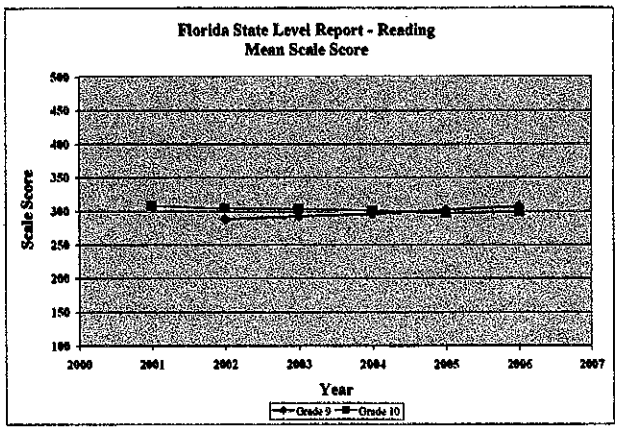
White Paper

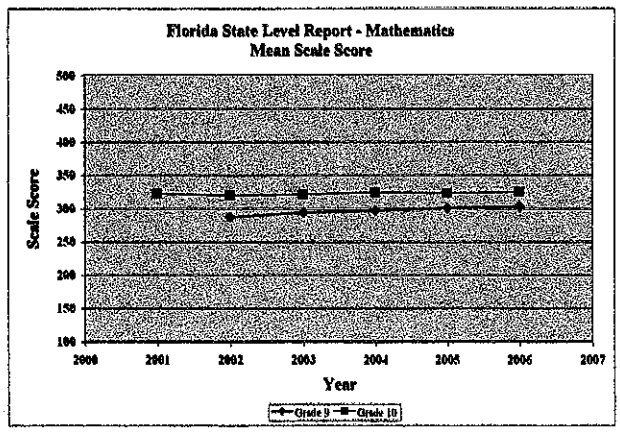
# Data-driven Instruction: An alternative to "teaching the test"

In the four years since it took effect in 2002, the No Child Left Behind (NCLB) law has had a sweeping impact on U.S. public school classrooms. It affects what students are taught, the tests they take, the training of their teachers, and the way money is spent on education. The law, which passed with bipartisan support, was designed to introduce national standards to a system in which students in some demographic groups were more likely to succeed and others more likely to be left behind. The goal is for every student in the public school system to be proficient in reading and math by 2014.

Debate rages over whether the law is an effective way to improve academic achievement. NCLB's advocates say the landmark law holds schools accountable, empowers parents and is helping to close the achievement gap in America's schools. Many critics, including those who agree with the law's goals, argue that it is a "one-size-fits-all" approach to education that overemphasizes testing and doesn't provide enough money to schools to achieve success.

Implementation of this much needed system of accountability has been further hampered by the absence of diagnostic tools to help schools steer improvement efforts. Lacking the detailed data necessary to diagnose systemic or individual problems, schools have abandoned their standard course curriculum and resorted to "teaching the test". If we look at the state of Florida's reading and math mean scale scores over the last six years, we can see that this approach is clearly ineffective.




Source: Florida Department of Education Website - State Level Report

(The Scale Score is a score used to report test results on the entire test. Scale Scores on the FCAT Sunshine State Standards tests are 100 through 500 for each grade level and content area.)

The lack of diagnostic tools to help figure out what to fix leaves students inadequately prepared for the yearly high-stakes tests. This predicament is stressful for the students, frustrating for the teachers and administrators and leaves everyone feeling they are spinning their wheels.

Florida's NCLB test vehicle is called the Florida Comprehensive Assessment Test (FCAT). Strategies for FCAT improvement vary from district to district. The smaller school districts don't have diagnostic testing programs because the cost of creating and administering such tests is very expensive. The larger school districts (Palm Beach, Broward) do have dedicated groups mandated to create and administer practice tests. These district-specific diagnostic testing programs are purported to help schools improve students' scores, but are ineffective for a number of reasons. First, they are prohibitively expensive and as a result of the "not invented here" mentality there is excessive duplication of effort from district to district. Second, the bureaucracy has made it impossible for the schools to receive timely results. Last, and most important however - because let's face it, if the delivery of diagnostic data to the schools was expensive and slow, but improved test scores it could be justified - the data is not the *right* data and as a result test scores have been flat for years, as we saw above.

The data which is reported to schools from all state and district sources is reported in the parlance of the Sunshine State Standards: Strands, Standards and Benchmarks. These are excellent "administrative metrics" which enable administrators to determine how well their school is performing against the state standards, but provide no specific information to the teacher trying to make improvements in the classroom. Teachers need much more detailed information than what is provided by administrative metrics to identify the systemic and individual "opportunities for improvement" at their schools. As a point in fact, each Benchmark, the most comprehensive level of resolution of the present reporting system, can encompass as many as ten different Mathematical Concepts. Performance on these detailed Mathematical Concepts is what is needed to achieve data-driven instruction. This dilemma is not endemic to Florida, but is a nation-wide predicament.

Educate Kids has developed a methodology, using scientific methods that have been employed in industry for years, to drill down further than standard analyses and identify the major opportunities for improvement for each student. We utilize 80 distinct Mathematical Concepts and a proprietary, patent-pending analysis methodology which not only identifies the specific types of test questions a student answers incorrectly, but also identifies the types that are answered incorrectly most often. With this specific data, a teacher can create an action plan to address those specific problem areas that offer the most significant opportunities for improvement for each student. Individual student data can be aggregated in a variety of ways, including by state, district, school, grade, teacher or demographics. This information can be used to look at global issues. As an extension of our services, we provide a problem database of FCAT-like problems that can be utilized to create problem sets and practice tests tailored to each student's immediate and specific needs.

Educate Kids is presently running a 10 school pilot program in the Palm Beach County School District. William T. Dwyer High School is one of the pilot schools and as a case study we will look at their FCAT retake results. Any 10th, 11th or 12th grade student who has not yet passed the FCAT takes a retake test in October. On September 12th, a math diagnostic test was administered to all Dwyer retake students. Educate Kids analyzed the test results and provided Opportunity Paretos for each student. An Opportunity Pareto is a visual ranking tool which identifies each student's major opportunities for improvement. Dwyer made the decision to focus on their 12th grade retake students. Educate Kids analyzed these students' Paretos and provided problems sets and practice tests of FCAT-like problems for remediation. In the three weeks leading up to the October retake test these 12th grade students worked problems focused on their major opportunities on a daily basis. The 10th and 11th graders were not part of this focused remediation effort. The retake test results were released on November 10th and the Dwyer results are summarized below.

| | 2005 Retake Test Percentage Passing | 2006 Retake Test Percentage Passing | % Difference |
|---|---|---|---|
| Grade 12 | 42% | 57% | 35.7% |
| Grade 11 | 43% | 42.8% | -0.5% |
| Grade 10 | 36% | 20% | -44.4% |

Note the significant improvement for the 12th grade students compared to the control group. Dwyer is now utilizing the Educate Kids methodologies for their Mathematics, Reading and Science FCAT improvement programs.