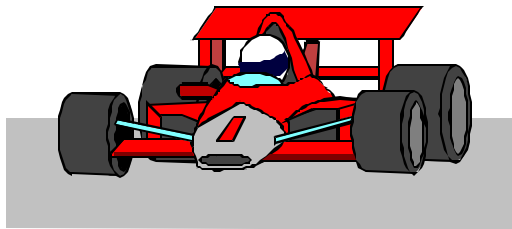


Indianapolis Public Schools
Raymond F. Brandes Elementary

500 Miles to Quality



A Koalaty Kid
Success Story

Feb. - Mar. 1999

500 Miles to Quality

The Continuous Improvement and Learning Process:

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BACKGROUND INFORMATION

This is a story about improvements made in the classroom by students and teachers.

AREA OF OPPORTUNITY

The Indiana State Wide Test of Educational Progress (ISTEP) assessment and the California Test of Basic Skills (CTBS) identified areas for math improvement.

REASON FOR SELECTION

Raymond F. Brandes Elementary received a grant from Indiana State University to improve basic math facts and problem solving skills. Teachers from the first and fourth grades volunteered to apply the Koalaty Kid process within their classrooms to improve the math abilities of their students.

TEAM MEMBERSHIP

Mrs. Linda Blankenship -- First Grade
Mrs. Karen Caughey - Fourth Grade
Mrs. Sheryl Otter - Primary Special Education Inclusion Teacher - 1st & 3rd Grade
Mrs. Lynette Rikard -- Fourth Grade Special Education Inclusion Teacher
Mrs. Tammy Skinner -- Counselor/Social Worker
Mrs. Donna Worth - Kindergarten
Mr. Tim Clark -- ASQ - Indianapolis Section Representative

TEAM SPONSOR

Mrs. Jann McMillian -- Principal

PROJECT STATEMENT

To improve the math skills of the students through application of the quality methods and tools.

Define the System

SYSTEM DEFINITION

1. System NAME: 500 Miles to Quality.
2. System CUSTOMERS. Students.
3. Customer NEEDS: Learn basic math facts used in computation. Develop techniques for problem solving.
4. System PURPOSE. To improve basic computational skills that can be used in everyday life.
5. System OUTPUT: Test and survey results.
6. System EXPECTATIONS: Improved test results and increased self-confidence in solving math problems; positive and immediate feedback.

7. RESOURCES

a. Materials: Flash cards, Fact-A-Thon tests, paper/pencils, clock, manipulatives, supplemental tests.

b. People: One first grade teacher, test coordinator, two fourth grade teachers, Koalaty Team, support personnel.

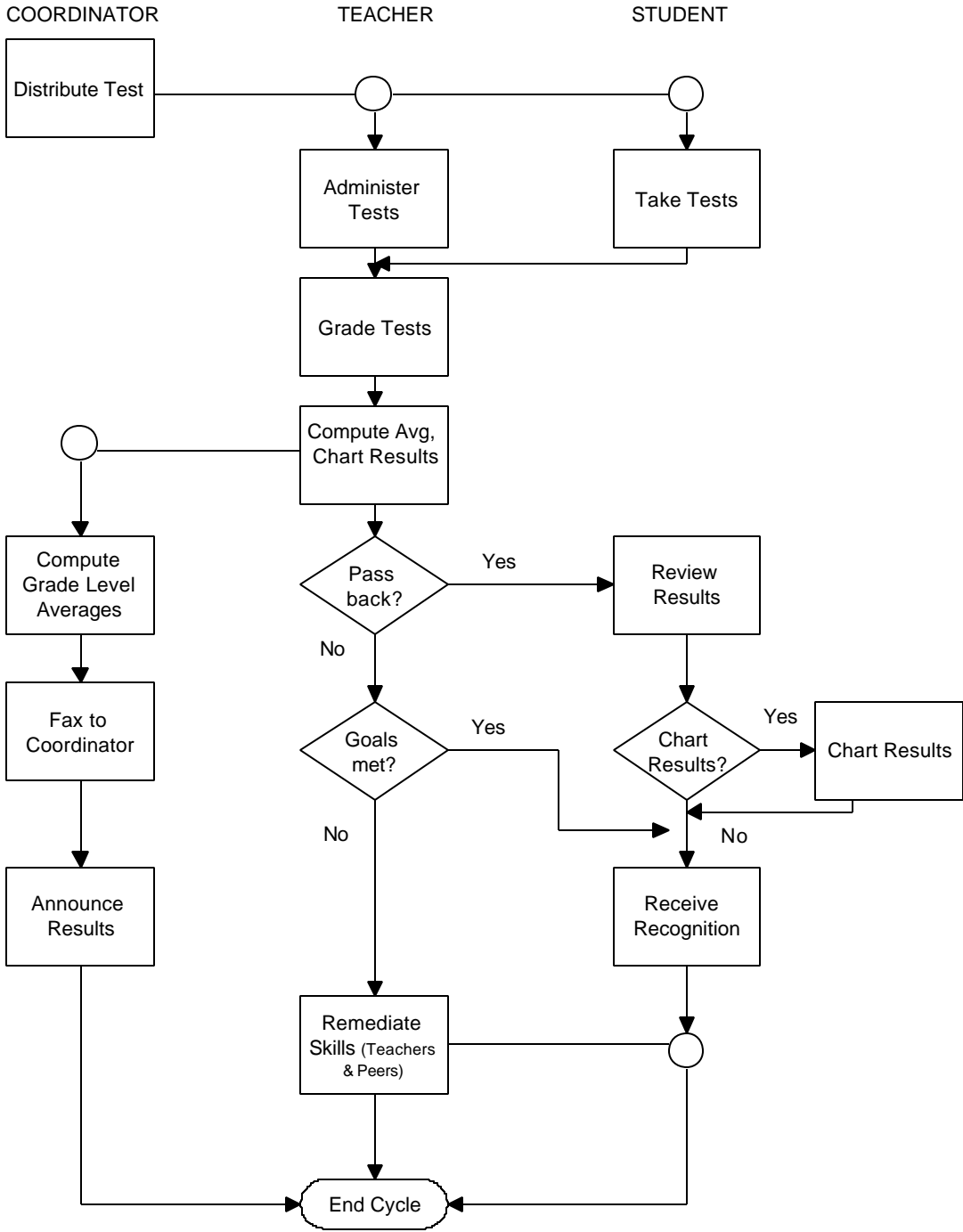
c. Environment: Individual seats/clusters, good lighting, no air conditioning, 1/20 student teacher ratio.

d. Equipment: Computers, chalkboard, overhead projector,

e. Information Aids: Fact-A-Thon guidelines, demonstrations, verbal instructions, prompts.

Define the System

DEPLOYMENT FLOW CHART



○ = Supporting Task

Define the System

OPERATIONAL DEFINITION

Quality Measure: Supplementary Math Problems - % Correct

1. Characteristics of interest: Basic math facts
2. Measuring instrument: Exercise sheets
3. Method of test: Students are given a timed test. Teachers grade test, compute percent correct and class average. 4th Grade students receive the same 80 question test and the 1st grade students are given new questions to cover new material.
4. Decision Criteria: The problem is either right or wrong.

Name: Mrs. Blankenship, Mrs. Caughey, Mrs. Otter and Mrs. Rikard

Quality Measure # 2 Fact-A-Thon

1. Characteristics of interest: Percent of problems answered correctly.
 - a. 1st Grade - 15-20 questions, four minutes to complete
 - b. 4th Grade – 30-40 questions, three minutes to complete.
2. Measuring instrument: Fact-A-Thon test sheets
3. Method of test: Timed test. Teachers grade test, compute percent correct and class average.
4. Decision Criteria: Problem is either right or wrong.

Name: Mrs. Blankenship, Mrs. Caughey, Mrs. Otter and Mrs. Rikard

Define the System

OPERATIONAL DEFINITION

Quality Measure # 3

1. Characteristic of Interest : Student attitudes about math.
2. Measuring Instrument: Survey sheet
3. Method of Test: Students are given a survey about their attitudes towards math.
4. Decision Criteria. Students circle the color of flag that best expresses their feelings about a respective question.

Name: Mrs. Blankenship, Mrs. Caughey, Mrs. Otter and Mrs. Rikard.

Define the System

DATA GATHERING PLAN

WHAT DATA	HOW	HOW MUCH	HOW OFTEN	WHERE	METHODS	WHO
1st Grade	% Correct, Class avg.	21 Students	3 x week	Classroom	Check sheet, run chart	Teacher, Linda B.
4th Grade	% Correct, Class avg.	20 Students	3 x week	Classroom	Check sheet, run chart	Teacher, Lynette R.
4th Grade	% Correct, Class avg.	21 Students	3 x week	Classroom	Check sheet, run chart	Teacher, Karen C.
1st & 4th Grades Fact-A-Thon	% Correct, Class avg.	62 Students	Every Two weeks	Classroom	Check sheet, run chart	Teacher, Sheryl O.

Define the System

STUDENT SURVEY

1. This is how I feel when I do a math game:

<i>(Green)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>	<i>(Yellow)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>	<i>(Red)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>
Like	Sometimes I like; Sometimes I don't	Don't Like

2. This is how I feel when I do a time test:

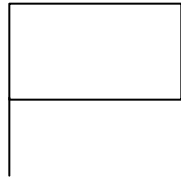
<i>(Green)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>	<i>(Yellow)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>	<i>(Red)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>
Like	Sometimes I like; Sometimes I don't	Don't Like

3. This is how I feel when I do a class assignment:

<i>(Green)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>	<i>(Yellow)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>	<i>(Red)</i> <div style="border: 1px solid black; width: 100px; height: 40px; margin: 5px auto;"></div> <div style="border-left: 1px solid black; border-right: 1px solid black; width: 100%; height: 20px; margin: 5px auto;"></div>
Like	Sometimes I like; Sometimes I don't	Don't Like

4. This is how I feel when I do math homework:

(Green)



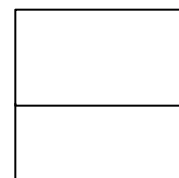
Like

(Yellow)



Sometimes I like;
Sometimes I don't

(Red)



Don't Like

5. This is how I feel when I do a story problem in math:

(Green)




Like

(Yellow)



Sometimes I like;
Sometimes I don't

(Red)



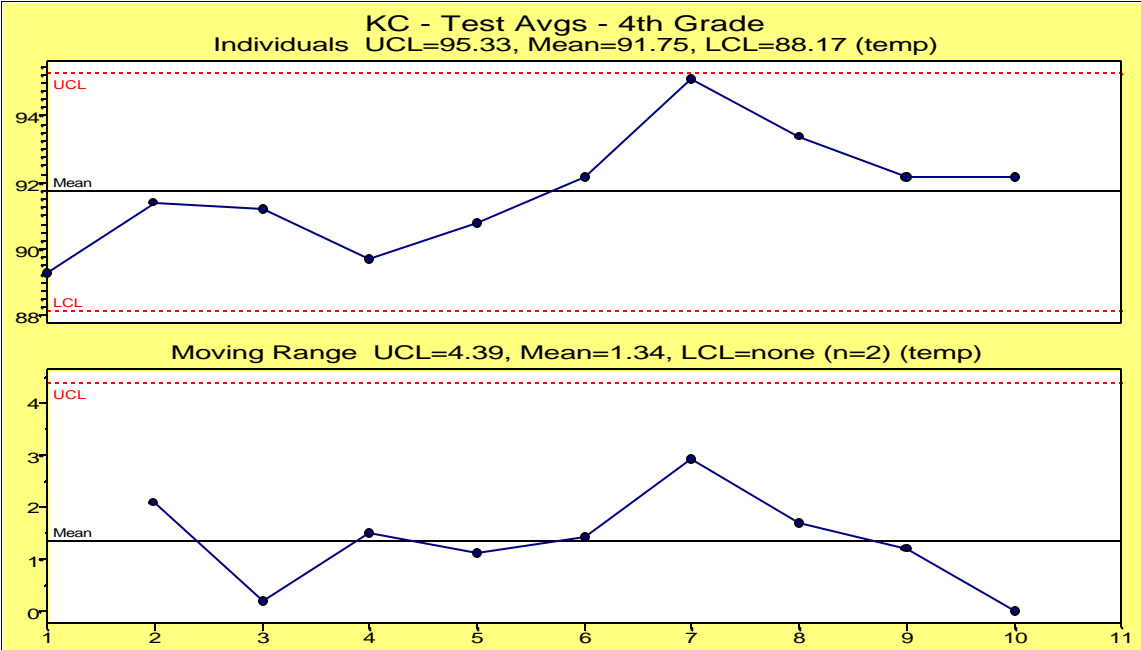
Don't Like

6. What makes math hard?

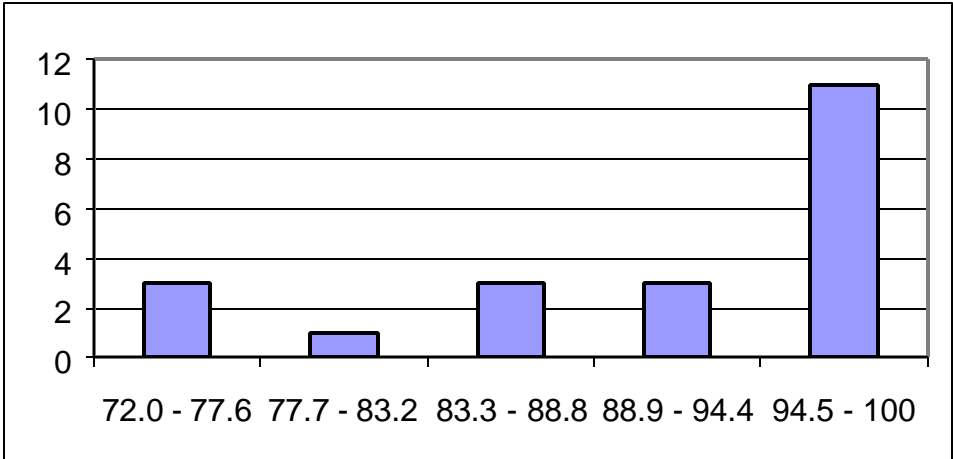
7. What makes math easy?

Assess Current Situation

Mrs. Karen Caughey - Fourth Grade
Supplemental Test Averages

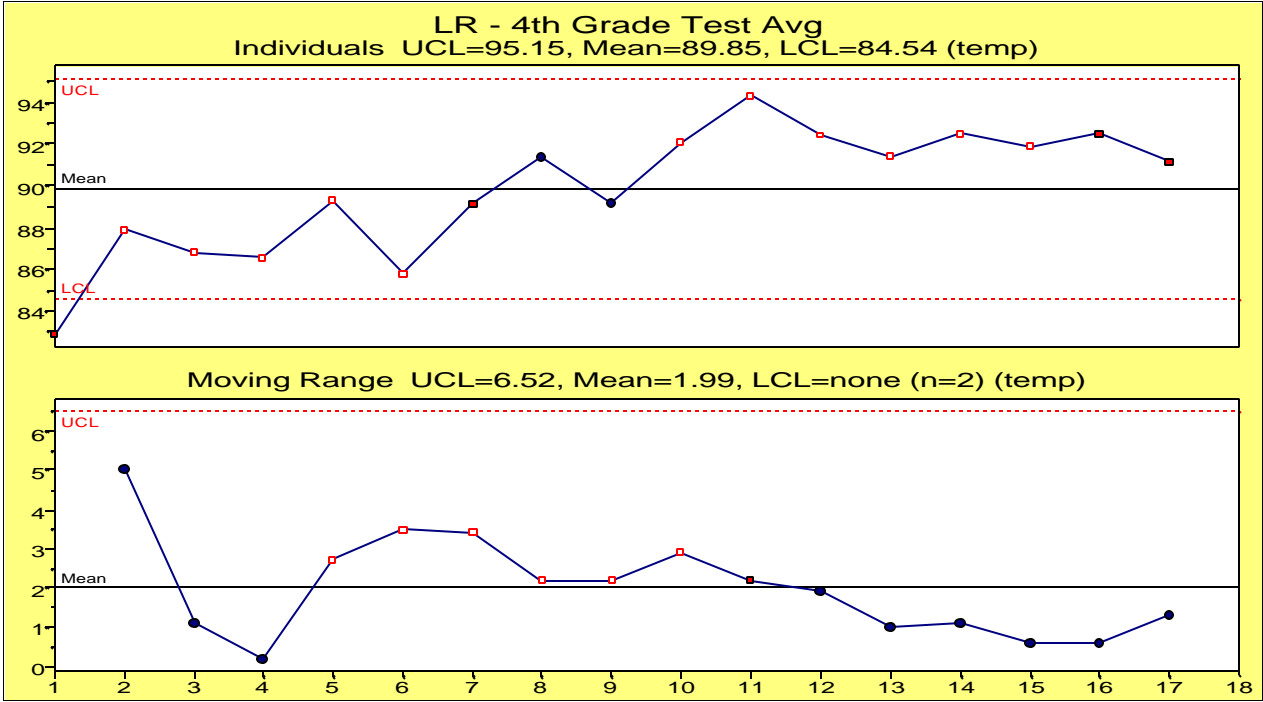


Histogram -- Student Test Averages

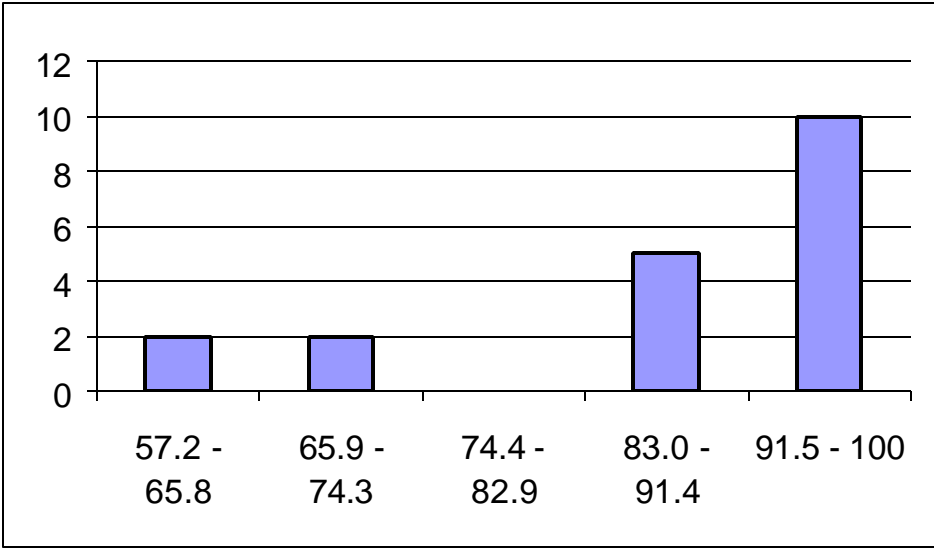


Assess Current Situation

Mrs. Lynette Rikard -- Fourth Grade
Supplemental Test Averages

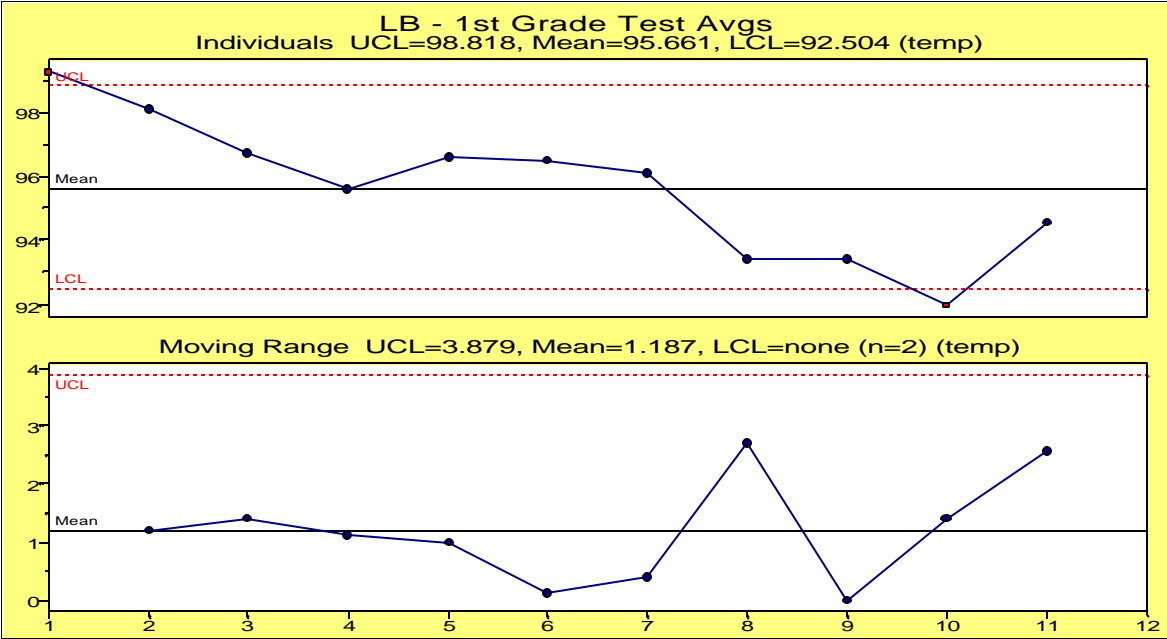


Histogram - Student Test Averages

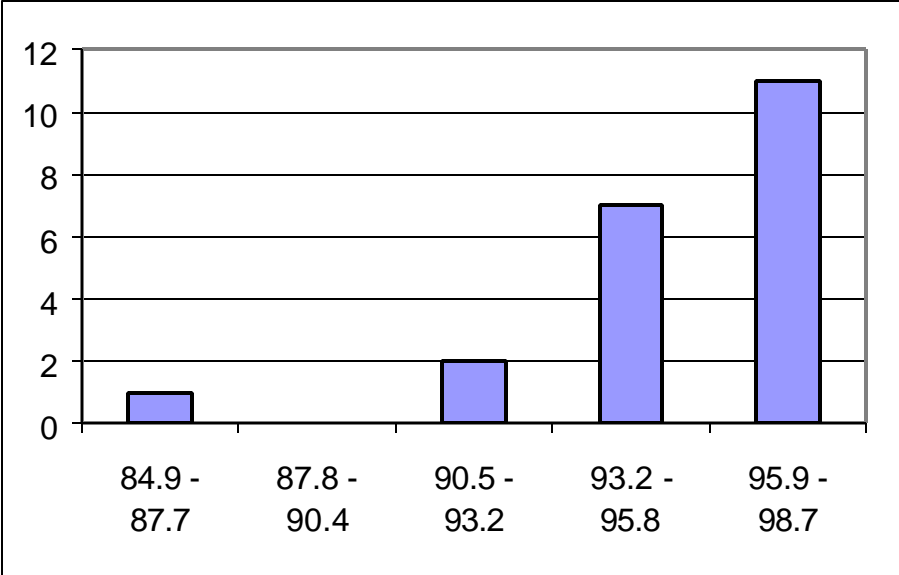


Assess Current Situation

Mrs. Linda Blankenship - 1st Grade
Supplemental Test Averages



Histogram - Student Test Averages



Assess Current Situation

Fact-A-Thon Results

	11/18/98	12/16/98	1/15/99	2/16/99		
1 st Grade				99		
4 th Grade - LR	95.4	81	95.4	93.6		
4 th Grade - KC	66.3	88.3	94	98		

Student Survey Results

Mrs. Caughey – 4th Grade	Like	Sometimes Like/don't	Don't Like
1. This is how I feel when I do a math game:	17	1	0
2. This is how I feel when I do a time test:	9	5	3
3. This is how I feel when I do a class assignment:	8	8	2
4. This is how I feel when I do math homework	11	3	4
5. This is how I feel when I do a story problem in math:	9	4	5
6. What makes math hard?			
a. Double digit division	3		
b. Algebra	2		
7. What makes math easy?			
a. Multiplication	6		
b. Adding	3		
c. Subtraction	2		

Mrs. Rikard – 4th Grade	Like	Sometimes Like/don't	Don't Like
1. This is how I feel when I do a math game:	12	1	1
2. This is how I feel when I do a time test:	7	5	2
3. This is how I feel when I do a class assignment:	11	2	1
4. This is how I feel when I do math homework	10	3	2
5. This is how I feel when I do a story problem in math:	7	4	3
6. What makes math hard?			
a. Long division	5		
b. Subtraction	3		
7. What makes math easy?			
a. Multiplication	2		
b. Adding	6		
c. Division	2		

Mrs. Blankenship – 1st Grade	Like	Sometimes Like/don't	Don't Like
1. This is how I feel when I do a math game:	10	3	3
2. This is how I feel when I do a time test:	9	2	5
3. This is how I feel when I do a class assignment:	7	5	3
4. This is how I feel when I do math homework	6	3	5
5. This is how I feel when I do a story problem in math:	8	3	5
Questions 6&7 – not used			

ANALYZE CAUSES

Cause Effect Matrix -- Low test results from a few of the students

CAUSES	LB / 1st	KC / 4th	LR 4th
TEACHERS	X	X	X
o. motivating students	X		X
o. not considering individual learning styles		X	
o. not successfully teaching concept of multiplication		X	X
o. not successfully teaching math concepts	X		
o. students did not learn facts in previous year	X	X	X
o. problems getting harder for students			X
o. not teaching test taking skills			
STUDENTS			
o. poor effort	X	X	X
o. not practicing.		X	X
o. fear of test	X	X	X
o. poor test taking skills	X	X	X
o. time and pressure	X		X
o. don't know concept of multiplication		X	X
o. just learning calculator skills		X	
o. lack of motivation	X	X	X
o. didn't learn in previous year		X	X
o. problems getting harder	X	X	X
o. loss of interest	x		
PARENTS			
o. lack of parental support	X	X	X
METHODS/TECHNIQUES			
o. not considering individual learning styles	X	X	X
o. inconsistent use of manipulatives from kindergarten to upper grades		X	X
o. not getting concepts across	X	X	X
o. inconsistent use of manipulatives to teach concepts	X	X	
o. inconsistent reinforcement of basic facts through the grades			X
o. not enough time devoted to use of manipulatives	X		X

Try Out Improvement Theory - Interim

1. Implement improvements for students having the most trouble.
2. Continue to collect data to determine process stability.
3. Continue to provide positive feedback to the students.

Study the Results

Target Timeframe -- April 23-30 1999

Standardize Improvements

Update the case study to serve as a policy / instruction guide.

Plan Continuous Improvement

Discuss the results with the principal and other teachers to assess the feasibility of expanding the program to all grade levels next year.