

School Improvement Action Plan

Kessler Elementary School

2012-2013

Goal 2: By the end of the school year, all students will increase their problem solving skills through communication and reasoning as measured by a three percent increase on the TerraNova Third Edition Subtests (grades 3-6) and selected local assessments (PK-6).

Type of Goal: X Knowledge X Application _____ Behavior _____ Attitude

Essence of the Goal:

Students will be able to demonstrate reasoning skills and communicate their work using correct vocabulary while accurately solving mathematical problems.

Support Data (from the Profile):

*TerraNova 2nd Edition math subtests:
 OPI Objective Summary Part II
 #17 Problem Solving and Reasoning
 #18 Communication
 Grades 3-6 March 2007
 Grades 3-6 March 2008

System-Wide Assessments:

*TerraNova 3rd Edition
 Grades March 2009 (Baseline)
 3-6 March 2010-2012

Local Assessments:

Local Math Problem Solving Assessment PK-6
 Mathematic Curriculum Assessments PK-6

Intervention/Strategy:

A "Four-Step Problem Solving Plan" graphic representation is used to guide students through the four-step problem-solving process.

1. Read: understanding the problem,
2. Plan: devising a plan to solve the problem,
3. Solve: implementing the plan, and
4. Look Back: reflecting on the problem.

Research:

According to Polya (1957): *"One of the first and foremost duties of the teacher is not to give his students the impression that mathematical problems have little connection with each other, and no connection at all with anything else....The teacher should encourage the students to imagine cases in which they could utilize again the procedure used, or apply the result obtained"* (p. 15-16). Florida Department of Education, Division of Public Schools and Community Education, Bureau of Exceptional Education and Student Services 2010.

The "Four-Step Problem Solving" plan helps elementary math students to employ sound reasoning and to develop mathematical language while they complete a four-step problem-solving process.

<http://www.cfisd.net/dept2/curricu/elmath/4step.htm>

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Activities to Implement the intervention:	Person(s) Accountable	Start Time	End Time	Resources
*Teachers will model, teach, and assess the multi-step problem solving process using appropriate strategies a minimum of once per week.	Classroom Teachers Dr. Djuna Underwood Dr. Deborah Williams	August 2012	May 2013	Lesson Plans Classroom Schedules
* Students will practice and apply the multi-step problem solving process using appropriate strategies to solve a variety of mathematical problems a minimum of once per week.	Classroom Teachers Students	August 2012	May 2013	Math Problem Solving Graphic Organizer
*Teachers will use formative and summative assessment data to differentiate instruction based on student needs.	Classroom Teachers	August 2012	May 2013	Math Problem Solving Rubric
* Teachers will use the problem solving rubric to assess student work. Data will be collected quarterly.	Classroom Teachers Grade-Level Leaders	August 2012	May 2013	Math Problem Solving Graphic Organizer (Prompts selected per grade level)
*Students will use a grade level problem solving rubric to assess their work at least once a month.	Classroom Teachers Students	August 2012	May 2013	Grade Level Organizers saved on K-Drive
*Teachers will teach and model the school developed problem solving graphic organizer as needed when teaching problem solving	Classroom Teachers	August 2012	May 2013	Math Problem Solving Graphic Organizer
*Students will use and apply the school developed problem solving graphic organizer to organize and consolidate their mathematical thinking when problem solving.	Classroom Teachers Students	August 2012	May 2013	Student samples/journals