

Creating Success for Students in Mathematics



Woodland Elementary
By Sherry Newhook & Gerald McCarthy
Grade 4

PROJECT DESCRIPTION

- Our grade 4 class will do a pre & post survey on their attitudes about math and their problem solving abilities. They will also do a pre & post test containing various word problems.
- We taught a different Word Problem Strategy each week for 7 weeks.

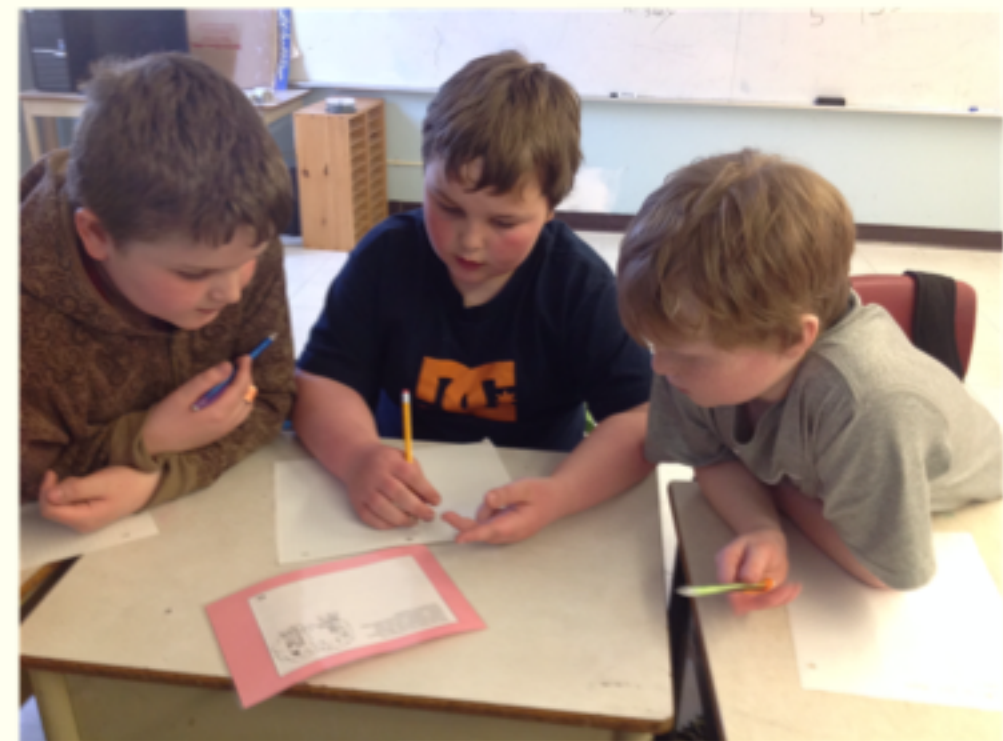
Problem Solving Strategies:

1. Guess and Check
2. Draw a Picture
3. Look for a Pattern
4. Make an Organized List
5. Make a Table or Chart
6. Work Backwards
7. Use Logical Reasoning

FOCUS AREA

We analyzed the grade 3 CRTs and identified weaknesses in their ability to problem solve.

The project aligned with the School Growth & Development Plan at Woodland, the 4 C's: Collaboration, Communication, Creativity and Critical Thinking.





OUR RESEARCH QUESTIONS

Teacher Question:

What is my role in supporting students develop problem solving strategies? Sherry - for students with identified exceptionalities.

Student Questions:

How will using problem solving strategies improve student understanding of math skills?

Will students use appropriate strategies when solving problems?

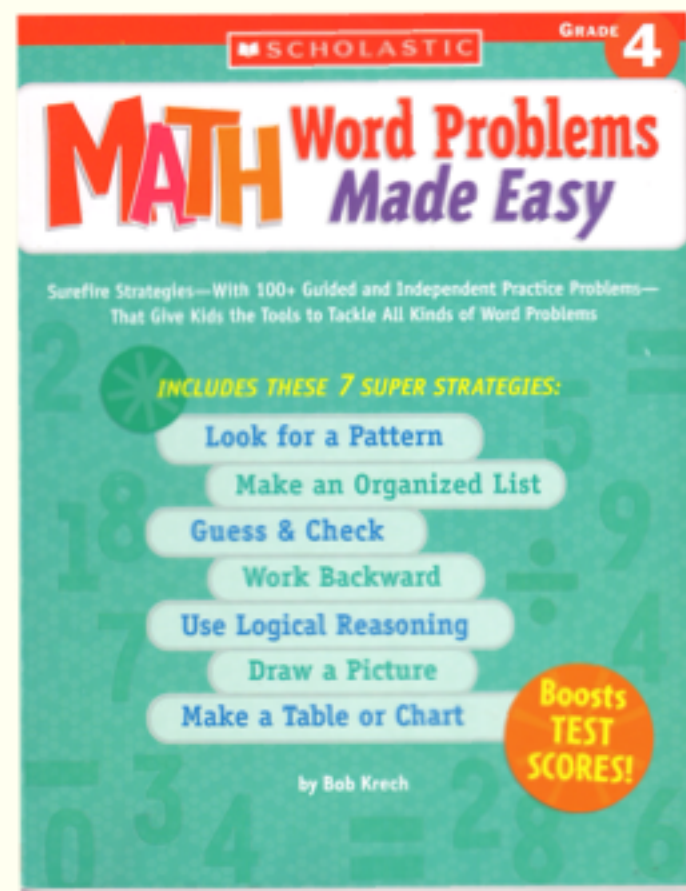


PLANNING

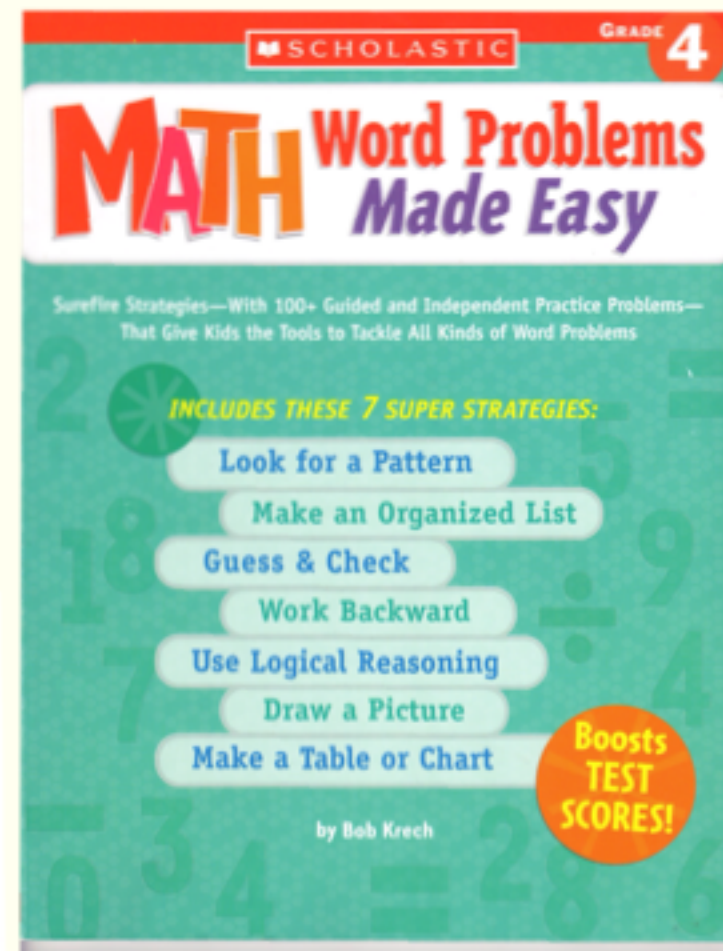
1. Initial Meeting - MUN
2. PD day - discuss research questions and permission slips with Tom and Karen.
3. Order Resources
4. PD days - prepare lessons, prepared bulletin board materials, put together word problems, create pre and post tests and surveys.
5. Implement program
6. Analyze data-pre and post surveys
7. PD Day -Work on presentation

OUR PLAN

- Pre-Survey (attitude towards math & problem solving).
- Pre-Test (grade 4 word problems)
- Teach Word Problem Process (Fantastic Five)
- Teach Word Problem Strategies
- Post-Survey (more positive attitude)
- Post-Test (more successful)



The Fantastic Five-Step Process



Problem Solving Strategies:

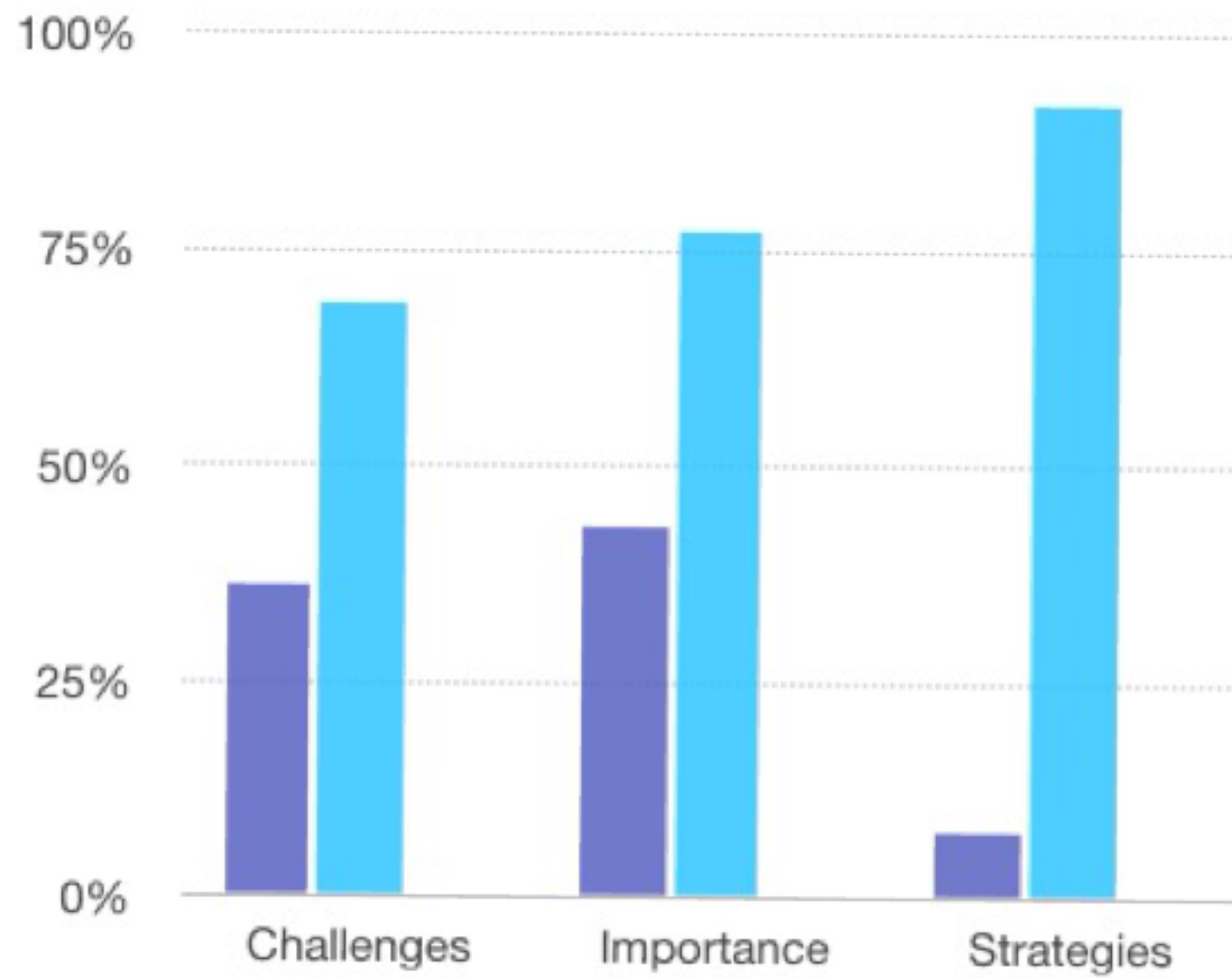
1. Guess and Check
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SURVEY RESULTS (Important Points)

- Students responses to solving challenging problems improved 36% to 69%
- Ability to name some strategies increased from 8% to 92%
- Importance of math in everyday life increased from 43% to 77%



STEM Project



Pre & Post Survey

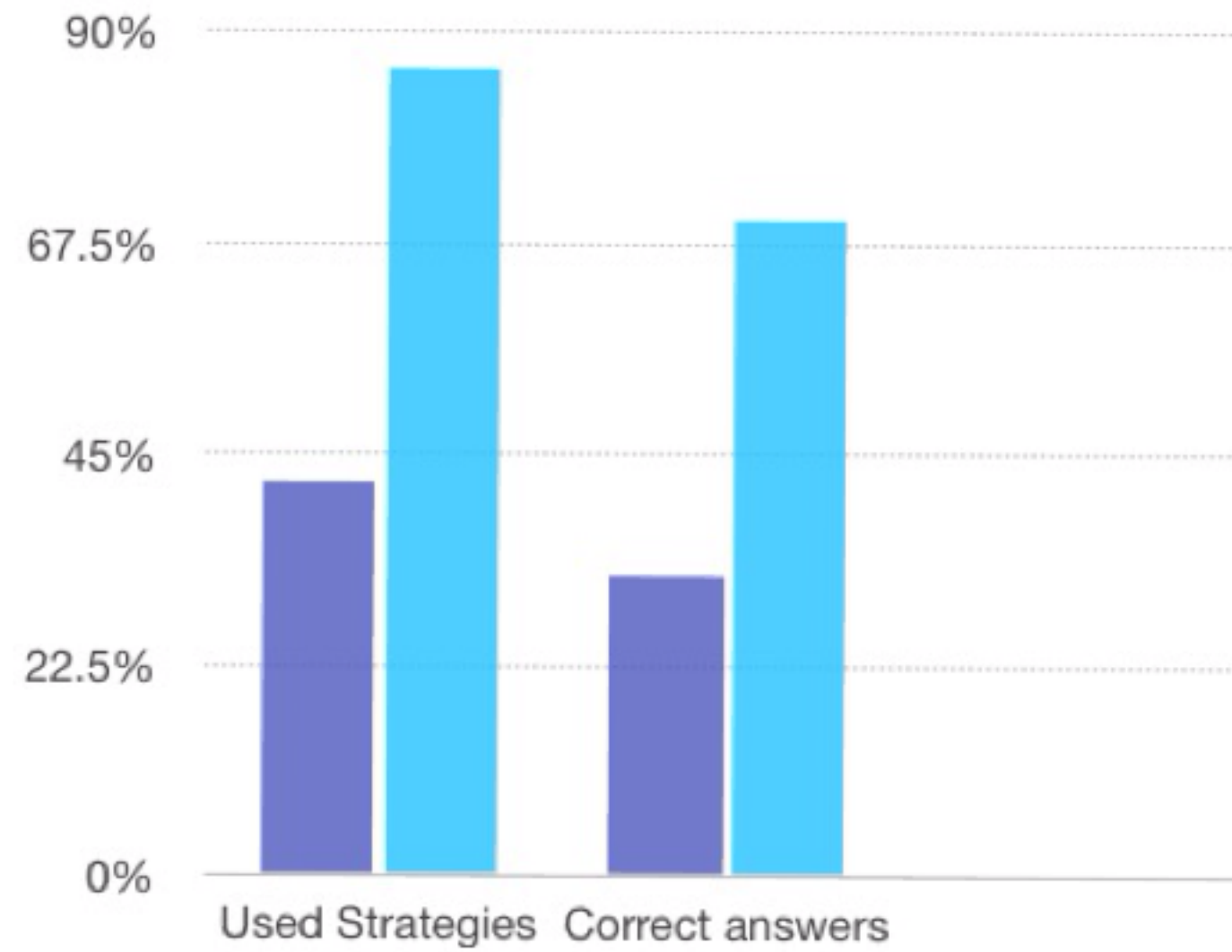
DESCRIPTION	CHALLENGES	IMPORTANCE	STRATEGIES
Presurvey	36%	43%	8%
Post survey	69%	77%	92%

TEST RESULTS

- In the pre test, students used strategies 42% of the time (32% correct answers)
- In the post test, students used strategies 86% of the time (70% correct answers)



STEM Project

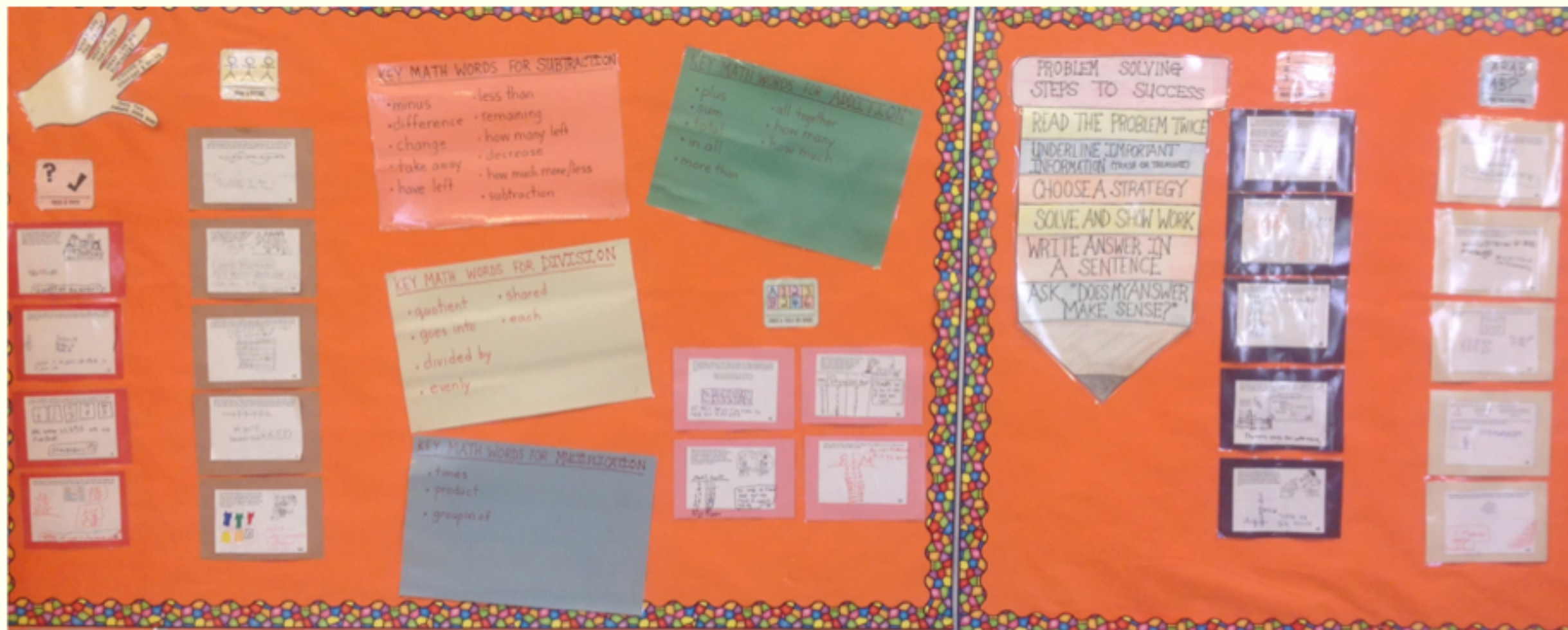


Pre & Post Word Problem Test

DESCRIPTION	USED STRATEGIES	CORRECT ANSWERS
Pre Test	42%	32%
Post Test	86%	70%

INSTRUCTION

- For every strategy introduced there was a lot of brainstorming, discussion, mini-lessons and real-life examples followed by collaborative group work and sharing.
- Bulletin board was created with problem solving strategies.



OBSERVATIONS

- Initially, through assessment and observations, students were seldom using word problem strategies. This changed throughout the project.
- Students with exceptionalities needed reteaching, extended time to complete activities and explain their thinking.
- Students made reference to the bulletin board display on problem solving.
- Students were able to use their personal strengths to collaboratively solve word problems.
- Students were engaged and worked well in their groups.



OUR PERSONAL DEVELOPMENT

- We became more familiar with the Fantastic Five Word Problem Process.
- Our instruction changed to include more real-life examples to aid students understanding.
- We learned more about how our students processed information.
- We feel the project was a success. We felt that real-life experiences should be used more often.
- We will continue to use this practice to introduce the process and individual word problem strategies.



INTERVIEW



"I actually figured it out"

"I like working with my buddies"

"We doing word problems today." (Excitedly)