

# School Improvement Plan

Pierce Terrace Elementary School

Goal 2 – Problem Solving

**Goal Statement:** By June 2012, students will improve their problem solving skills, by selecting and applying problem solving strategies and justifying answers, as measured by an increase in the percentage of students scoring at the practitioner or expert level on the Exemplars (PreK-2).

**Type of Goal:** (Mark as appropriate)  Knowledge  Application  Behavior  Attitude

**Essence (two or three specific skills):** Students will demonstrate problem solving by selecting and applying problem solving strategies and justifying answers.

Support Data (used to select the goal):	System-Wide Assessment(s)	Local Assessments
<ol style="list-style-type: none"> <li>TerraNova 2007-2009</li> <li>Fort Jackson Schools' Environmental Scan</li> <li>Problem Solving Assessment</li> </ol>	<ol style="list-style-type: none"> <li>TerraNova Multiple Assessments – 3rd Grade (CCP) Math Subtest</li> </ol>	<ol style="list-style-type: none"> <li>Exemplars Formative – Sep, Nov, Feb Summative – May</li> <li>Everyday Math Assessments Formative – Sep, Jan Summative – May</li> <li>Everyday Math (COMING SOON!)</li> </ol> <p>*see attached Assessment Calendar for protocols and rubrics.</p>

Strategy / Intervention	Research supporting this strategy and intervention												
<p>Students will use a 4 step Problem Solving process and specific strategies to solve mathematical problems.</p> <table border="0"> <tr> <td>4 Step Problem Solving Process</td> <td style="text-align: center;">Strategies</td> </tr> <tr> <td>1. Understand the Problem</td> <td>1. Draw a picture                      6. Brainstorm</td> </tr> <tr> <td>2. Choose a Strategy</td> <td>2. Make a list                              7. Work backward</td> </tr> <tr> <td>3. Solve It!</td> <td>3. Act it out                                8. Logical reasoning</td> </tr> <tr> <td>4. Look Back</td> <td>4. Use or look for a pattern    9. Make it simpler</td> </tr> <tr> <td></td> <td>5. Guess and check                      10. Make a table</td> </tr> </table>	4 Step Problem Solving Process	Strategies	1. Understand the Problem	1. Draw a picture                      6. Brainstorm	2. Choose a Strategy	2. Make a list                              7. Work backward	3. Solve It!	3. Act it out                                8. Logical reasoning	4. Look Back	4. Use or look for a pattern    9. Make it simpler		5. Guess and check                      10. Make a table	<p>Most educational experts advocate the use of multi-step problem-solving methods that foster students' performing at complex levels of thinking. Also, following the four step allows for students to deepen their understanding of mathematical concepts.</p> <p>Polya, George. The Four Step Problem Solving Process.  <a href="http://www.drkhamsi.com/classe/polya.html">http://www.drkhamsi.com/classe/polya.html</a></p>
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Activities to implement the intervention:	Person(s) Accountable	Timeline		Resources
		Begin	End	
<ul style="list-style-type: none"> <li>Teachers will model/teach a 4 step problem solving method in a variety of settings.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	Goodnow, J. & Hoogeboom, S. (2008). The Problem Solver – Activities for Learning Problem Solving Strategies. McGraw-Hill: Chicago, IL.  DSO – ISS Support Dr. Lemuel Patterson Dr. Judith Williams
<ul style="list-style-type: none"> <li>Students will use the 4 step problem method to solve mathematical problems weekly in a variety of settings.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	
<ul style="list-style-type: none"> <li>Teachers will provide direct instruction on the different problem solving strategies weekly.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	
<ul style="list-style-type: none"> <li>Students will apply the different strategies to solve mathematical problems weekly.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	
<ul style="list-style-type: none"> <li>Teachers will model the Exemplars Scoring Rubric bi-weekly.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	
<ul style="list-style-type: none"> <li>Students will participate in peer/self-assessments or cooperative groups using the exemplar rubric bi-weekly.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	
<ul style="list-style-type: none"> <li>Teachers will use Exemplars Rubric when scoring common assessments in problem solving to monitor progress, adapt instruction, and provide feedback monthly.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	
<ul style="list-style-type: none"> <li>Students will use the Exemplars Scoring Rubric to assist in solving mathematical problems and track progress toward improving their problem solving skills.</li> </ul>	Principal Classroom Teachers	August 2011	June 2012	