Joan Martin Elementary School

Action Plan #3: Problem Solving

Improvement Goal:

All students will use problem solving skills to think critically and apply knowledge and reason to solve problems.

Expectation(s) for Student Learning:

All students will compute accurately with and without a calculator.
All students will demonstrate problem-solving skills in mathematics and science.
All students will use technology research tools to locate, evaluate, and collect information in order to process data and report results.
All students will use technology resources in developing strategies and making informed decisions for solving problems.

Target Participants:

All students in Joan Martin Elementary School
Subgroups:
Students who are achieving below proficiency level.
Students who are achieving above proficiency level.

Interventions:

Curriculum, Instructional and Assessment:

All students will increase skills in mathematics and science by monitoring progress on academic and Common Core State Standards to determine instructional needs.
All students will use reasoning and critical thinking to solve problems that provide relevant, concrete, and everyday problems across the curriculum.
All students will increase problem solving skills by using technology tools across the curriculum.

Student Support:

Students will participate in Response to Intervention (RTI) tiers based on achievement levels.
Students will participate in enriched and high ability courses based on achievement levels.
All students will increase problem solving skills through opportunities for family/community participation.
Students who qualify for additional services will be provided extra instructional support.

Staff:

All students will increase problem solving skills as a result of teacher participation in professional learning communities.

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Evaluation:
School City of Hobart's Balanced Assessment System Framework
Standards-based Report Card
Conferring
Checklists/Rubrics

Timeframe for Implementation:
2012-2016

Target Area of Improvement: Mathematics - Computation, Problem-Solving, and Data Analysis

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
Intervention: Assessment/Differentiated Instruction for Conceptual Understanding 1. All students will increase skills in mathematics and science by monitoring progress on academic and Common Core standards to determine instructional needs. A. NWEA will be administered to grades one and two every fall and spring to determine goal areas needing remediation for each student. B. ISTEP data will be analyzed to determine skill areas needing remediation for each student. C. mClass will be administered in grades one and two in the fall, winter, and spring to determine goal areas needing remediation for each student. D. Acuity will be administered in grades three through five to determine goal areas needing remediation for each student. 2. All students will increase problem solving skills through differentiated instruction across the	2012-2016	-Elementary Staff, as appropriate -Administrators	-Classroom assessments -SCOH Balanced Assessment System Framework -Journals -Rubrics -Conferring -Checklists -Odyssey Compass Learning	-Classroom assessments -Manipulatives -Calculator -Software -Flash cards -Classroom Texts -Time for data analysis -Rocket Mathematics -RTI -Professional Development Catalog -Purdue Problem Centered Mathematics Project -*Everyday Mathematics* by University of Chicago School Mathematics Project -*Indiana Department of*

curriculum that emphasizes conceptual understanding. A. Students will learn basic math facts. B. Students will understand units of measurement and apply appropriate techniques and formulas. C. Students will understand and solve algebraic equations and understand patterns and relationships between numbers. D. Students will identify, describe, and compare geometrical shapes. E. Students will construct and interpret graphs throughout the curriculum as part of data analysis. F. Students will learn and apply inquiry-type strategies.				*Education* web site, ISTEP+ practice -Odyssey Compass Learning - Acuity practice exercises - mClass activities -SCOH Balanced Assessment System Framework
Intervention: Reasoning and Critical Thinking To Solve Problems 1. All students will use reasoning and critical thinking to solve problems that provide relevant, concrete, and everyday problems across the curriculum. A. Students will build academic vocabulary across the curriculum. B. Students will understand and choose the correct mathematical operation to solve problems across the curriculum. (Example: "Similarities and Differences/Graphic Organizers" - Marzano) C. Students will use mental math/estimation to understand when an exact answer or an estimate is sufficient. D. Students will develop a set of problem solving strategies across the curriculum. Example:	2012-2016	-Elementary Staff Cross-Curricular -Administrators	-Classroom assessments -Journals -Rubrics -SCOH Balanced Assessment System Framework -Odyssey Compass Learning	A. *Classroom Instruction That Works* by Robert Marzano B. *Choice Words* by Peter Johnston C. *The Art and Science of Teaching* by Robert Marzano -Manipulatives -Textbook -Odyssey Compass Learning - Acuity practice exercises - mClass activitie -SCOH Balanced Assessment System

1. READ What is the question? 2. REREAD What is the necessary information? 3. THINK Putting together = addition Taking apart = subtraction Do I need all the information? Is it a two-step problem? 4. SOLVE Write the equation. 5. CHECK Recalculate Label Compare E. Students will problem solve by using probability, data analysis, and statistics across the curriculum.				Framework s
Intervention: Technology Tools 1. All students will increase problem solving by using technology tools across the curriculum. A. Students will construct, interpret, and analyze graphs. B. Students will use calculators to solve mathematical equations. C. Students will use computer simulations to solve problems	2012-2016	-Elementary Staff Cross-Curricular -Administrators	-Classroom Assessments -Teacher Observation -Student Presentations -Odyssey Compass Learning -SCOH Balanced Assessment System Framework	-Calculators -Computers and Simulation Software -Professional Development Calendar -Encyclopedia Britannica Online -Odyssey Compass Learning -Challenger Learning Center (Space Simulation) -Khan Academy -Harry Kindergarten on YouTube -Tablets -Responders -iPads

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				-vBrick -Learn 360 -Google apps
Intervention: Response to Instruction (RTI) 1. Students will participate in RTI Tiers based on achievement levels. A. A district-wide RTI policy is implemented with guidelines. B. Tier II will be implemented through the intervention of "Increased Academic Learning Time" within the classroom including the following: -Achievement Groups - Strategy Groups -Double Blocked Subjects -Computerized Intervention Software C. Tier II and Tier III will be implemented through intense intervention with additional support services. -Computerized Intervention Software -Intense Reading Intervention -Individual Instruction -Small Group Instruction	2012-2016	-Principals -K-12 Teachers -LRE Facilitators -Interventionists -RTI Teams	-SCOH Balanced Assessment System Framework -RTI Forms -RTI Meetings	-SCOH Balanced Assessment System Framework -Professional Learning Communities -Common Planning Time -RTI Policy & Guidelines -RTI Forms & Meetings -Harmony -Leveled Literacy Intervention (LLI) -System 44 -Read 180 -Fast ForWord -Scholastic University -Professional Development RTI -Curriculum Materials RTI -TRC -RAZ Kids -mClass (Grades K-2)
Intervention: Enriched and High Ability 1. Students will participate in Enriched and High Ability courses based on achievement levels. A. Enriched Curriculum -Small Group Instruction -Enriched Courses B. High Ability -Magnet High Ability Grades 2-5	2012-2016	-Lead: Central Office Administrators -Principals -Teachers	-School City of Hobart's Balanced Assessment System Framework	-School City of Hobart's Balanced Assessment System Framework -Professional Learning Communities -Common Planning Time -Harmony -TRC -High Ability Policy and Guidelines
Intervention: Instruction Support Services Students who qualify for additional services will be provided extra instructional support.	2012-2016	-Principals - Teachers -EL Coordinator	-School City of Hobart's Balanced Assessment System Framework	-School City of Hobart's Balanced Assessment System Framework

A. Special Education B. English Learners (EL)		-Special Education Staff		-Professional Learning Communities -Common Planning Time -Harmony -TRC (District Web site) -IEP -Case Conferences
Intervention: Family/Community Involvement 1. All students will increase problem solving skills through opportunities for family/community participation. A. Harmony - Assignments/Grades/Discipline/Attendance B. Family Nights C. Website - Homework Help and Tips D. Parent/Teacher meetings E. Homework Hotline F. Newsletters	2012-2016	-Principals -Elementary Staff -Central Office Administration -Technology Department	-Parent/Teacher Conference Attendance -Monitoring Harmony usage -Monitoring Website usage -Odyssey Compass Learning	-Harmony Parent Information Packet -School City of Hobart Website -Odyssey Compass Learning
Intervention: Professional Collaboration 1. All students will increase mathematical and problem solving skills as a result of teacher participation in professional learning communities. A. Data Analysis - NWEA, ISTEP, Acuity (3-5), mClass (1 & 2), Classroom Assessments, Odyssey Compass Learning B. Best Practices - Book Studies, Grade Level/Curriculum/Department Meetings/DATA Meetings C. Professional Development - In-House Professional Development Calendar, Conferences D. Family Nights – Problem-Solving Activities	2012-2016	-Administrators -Elementary Staff	-SCOH Balanced Assessment System Framework -Classroom Assessments -Teacher Goal Sheets -Professional Development Enrollment -Grade Level Meetings -District Grade Level Meetings	-Time for Professional Development -Professional Development -Book Studies -Data Analysis Training -mClass (1 & 2) - Acuity (3-5) -SCOH Balanced Assessment System Framework