Teaching and Learning Action Plan #3c: Problem Solving
Improvement Goal: All students will use problem solving skills to think critically and apply knowledge and reason to solve problems.
Expectations(s) for Student Learning: • All students will think and reason effectively. • All students will solve problems accurately and efficiently. • All students will communicate clearly using mathematical language and representations by demonstrating skills and knowledge. • All students will use technology research tools to locate, evaluate, and collect information in order to process data, report results, and make informed decisions for solving problems.
Target Participants: All students in the School City of Hobart Subgroups: Students who are achieving below proficiency level. Students who are achieving above proficiency level.

Teaching and Learning Action Plan #3c: Problem Solving
Interventions: **Curriculum, Instructional and Assessment:** All students will increase skills in mathematics through monitoring progress on Common Core State Standards (CCSS). All students will increase problem solving skills through differentiated instruction across the mathematics curriculum that emphasizes conceptual understanding. All students will use reasoning and critical thinking to solve problems through applied mathematics **across the curriculum** that provide relevant, concrete, and everyday problems. All students will increase problem solving skills by using technology tools **across the curriculum**. **Student Support:** Students will participate in Response to Instruction (RTI) Tiers based on achievement **and behavior** 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.
Evaluation: Curriculum Calendar Units of Study School City of Hobart's Balanced Assessment System Framework: **Classroom Assessments-** running records, **formal scales,** rubrics, checklists, quizzes, unit tests, final exams **Common Formative Assessments-** Odyssey Compass Learning, quality core, rubrics, checklists **Benchmark Assessments-** ~~a~~**A**cuity~~, mClass~~, quarterly standards based assessments, ~~SPI~~ **Quantile (SMI)** **External Summative Assessments-** DIAL, ISTEP, ECA, ACT EPAS, AP Exams, ISTAR, IMAST, LAS Links, NWEA
Timeframe for Implementation: 2012 - 2016

Target Area of Improvement: Problem Solving - Teaching and Learning Action Plan #3c: Problem Solving - Computation, Problem-Solving, and Data Analysis

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
Intervention: Common Core State Standards 1. All students will increase Problem Solving through monitoring progress on Common Core State Standards and Mathematical Practices. A. School City of Hobart's Balanced Assessment System Framework B. Using Common Core Mathematical Practices. 1. Make sense of problems and persevere in solving them. 2. Reason abstractly and quantitatively. 3. Construct viable arguments and critique the reasoning of others. 4. Model with mathematics. 5. Use appropriate tools strategically. 6. Attend to precision. 7. Look for and make use of structure. 8. Look for and express regularity in repeated reasoning. C. Using Common Core State Standard's Vocabulary.	2012-2016	-Central Office Administrators -Principals -K-12 Teachers	-School City of Hobart's Balanced Assessment System Framework - Classroom Assessments (emphasis) **-Formal scales** - Conferring/Anecdotal Records - Checklists/Rubrics - Quizzes -Unit Tests - Standards-based Report Cards	- School City of Hobart's Balanced Assessment System Framework - Classroom Assessments (emphasis) - Conferring/Anecdotal Records - Checklists/Rubrics - Journals/Reader's & Writer's Notebook - Standards-based Report Cards -TRC (District Web site) -Google ~~Docs~~ -*Balanced Assessment* by Burke -*Common Formative Assessments* by Bailey and Jakicic -*The Art of Science and Teaching* by Marzano -Professional Development Calendar -Common Core State Standards -Mathematical Toolboxes **-Using *Common Core Standards* by Marzano**

Target Area of Improvement: Problem Solving - Teaching and Learning Action Plan #3c: Problem Solving - Computation, Problem-Solving, and Data Analysis

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
Interventions: Assessment/Differentiated Instruction for Conceptual Understanding 1. All students will increase problem solving skills through monitoring progress on Common Core State Standards to determine instructional needs. A. School City of Hobart's Balanced Assessment System Framework B. Classroom Assessments/Conferring/Checklists/Rubrics/Journals will be administered to determine instructional areas for students. 2. All students will increase problem solving skills through differentiated instruction across the mathematics curriculum that emphasizes conceptual understanding. A. Students will know basic math facts (These help in acquisition and speed of performing math). 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 demonstrate the ability to compare and contrast different values. 3. All students have the opportunity to practice and demonstrate proficiency. 4. Students will receive guided group instruction. 5. Students will receive small group instruction for proficiency. 6. Students have the opportunity to participate in peer tutoring, study tables, and ECA review sessions.	2012-2016	-Central Office Administrators -Principals - Teachers K-12	- School City of Hobart's Balanced Assessment System Framework -Classroom Assessments **-Formal scales** -Journals -Checklists/Rubrics -Conferring -Item Analysis	- School City of Hobart's Balanced Assessment System Framework -Classroom Assessments -Manipulatives -Calculator -Software -Flash Cards -Classroom Texts -Time for Data Analysis -Professional Learning Communities -Professional Development Calendar -Curriculum Maps -TRC (District Web site) - Peer tutors - Study Tables

Target Area of Improvement: Problem Solving - Teaching and Learning Action Plan #3c: Problem Solving - Computation, Problem-Solving, and Data

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
Intervention: Reasoning and Critical Thinking To Solve Problems 1. All students will use reasoning and critical thinking to solve problems through applied mathematics across the curriculum that provide relevant, concrete, and everyday problems. A. Students will build academic vocabulary across the curriculum. B. Students will understand and choose mathematical operations 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 is needed or an estimate is sufficient. D. Students will problem solve by using probability, data analysis, and statistics across the curriculum.	2012-2016	-Lead: 2-12 Math/Science (varies 10-12)	-Classroom Assessments **-Formal Scales** -Journals -Rubrics -ISTEP -NWEA	-*Classroom Instruction That Works* by Robert Marzano -*Choice Words* by Peter Johnston -*Building Academic Vocabulary* by Robert Marzano -Manipulatives -Textbooks -Inquiry Materials for Science -Curriculum Maps
Intervention: Technology Tools 1. All students will increase problem solving skills by using technology tools across the curriculum. A. Students will construct and interpret graphs using spreadsheets along with data analysis. B. Students will use calculators/graphing calculators to calculate, analyze and interpret mathematical equations. C. Students will use computer simulations to solve problems.	2012-2016	-Lead: K-12 Cross-curricular	-Classroom Assessments **-Formal Scales** -Teacher Observation -Student Presentations	-Tablets -Responders -iPads -SmartBoards -Google Apps -Compass Learning Odyssey -vBrick ~~-Learn 360~~ -Calculators -Graphing Calculators -Professional Development Catalogs -Computers & Simulation Software -Challenger Learning Center (Space Simulation) **- Math 180** **-My Big Campus**

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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
Intervention: Response to Instruction (RTI) 1. Students will participate in RTI Tiers based on achievement **and behavior** 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 -Seminar -Freshman Academy -Summer School -Double Blocked Subjects ~~-English as a New Language~~**Counseling** C. Tier II and Tier III will be implemented through intense intervention with additional support services. -Small Group Instruction -Individual Instruction **-Small Group Counseling** 6. Students have the opportunity to participate in peer tutoring, study tables, and ECA review sessions.	2012-2016	-Lead: Central Office Administrators -Principals -Northwest Indiana Special Education Cooperative (NWIESC) Director -K-12 Teachers -LRE Facilitators -Interventionists -RTI Teams	-School City of Hobart's Balanced Assessment System Framework -RTI Forms -RTI Meetings	-School City of Hobart's Balanced Assessment System Framework -Professional Learning Communities -Common Planning Time -RTI Forms - RTI Meetings -Harmony -Scholastic University -RTI Policy and Guidelines -Professional Development RTI -Curriculum Materials -RTI -TRC -Compass Learning Odyssey -Khan Academy **-Ask Rose** - Peer tutors - Study Tables **-Math 180** **-Do the Math**
Intervention: Instruction Support Services Students who qualify for additional services will be provided extra instructional support. A. Special Education B. English Learners (EL)	2012-2016	-Lead: Central Office Administrators -Principals -K-12 Teachers -EL Coordinator -Special Education Staff	-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 (District Web site) -IEP Advantage -Case Conferences

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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
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 2-8 -Advanced Placement (AP) Courses -Gifted and Talented (GT) Classes (Leadership Classes at the High School C. Accelerated Courses -College Credit Courses -Career Pathway Electives	2012-2016	-Lead: Central Office Administrators -Principals -K-12 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 -AP Curriculum and Professional Development -College Curriculum and University Partnership Professional Development -High Ability Policy and Guidelines
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 - Math Games C. Web site - Homework Help and Tips -Khan Academy -Ask Rose D. Compass Odyssey Learning E. Parent Teacher Meetings **F. Career Cruising – Monitoring College and Career Planning**	2012-2016	-Lead: Central Office Administration -Principals -School Staff -Technology Department	-Parent/Teacher Conference Attendance -Monitoring Harmony Usage -Monitoring Website Usage -Family Night Attendance	-Harmony Parent Information Packet -District Web site -Khan Academy -Ask Rose **-Coffee Club for Parents** **-Career Cruising**

Target Area of Improvement: Problem Solving - Teaching and Learning Action Plan #3c: Problem Solving - Computation, Problem-Solving, and Data

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
Intervention: Professional Learning Communities 1. All students will increase problem solving skills as a result of teacher participation in professional learning communities. A. Curriculum Planning - Grade Level/Curriculum/Department Meetings -Identification of Critical Standards -Units of Study/Curriculum Calendar/Curriculum Mapping -Web Publishing with School Wires -Career Academy Curriculum Training B. Assessment -Continuous data analysis will be implemented by using the School City of Hobart's Balanced Assessment System Framework. C. RTI Teams D. Professional Development - In-House Professional Development Catalog, Conferences, & Contracted Services	2012-2016	-Lead: Administrators -K-12 teachers -RTI Teams	-Teacher Professional Goals -Curriculum Maps **-Formal Scales** -Enrollment in Professional Development -School City of Hobart's Balanced Assessment System Framework -RTI Teams	-School City of Hobart's Balanced Assessment System Framework -Professional Development Catalog -Common Planning Time **-Late Start Wednesdays** -Professional Learning Community Meetings -RTI Training -TRC (District Web site) ~~-Career Academy Training~~ -Interventionists -Fast ForWord -Scholastic University -Contracted Services **-Math 180** **-Do The Math**