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 Indiana Academic -Standards (IAS). 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. Students participating in career academies will use the defined curriculum set forth by industry and/or institution that established them. 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. Students will participate in afterschool clubs and extracurricular activities **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 (CFAs)-** Department/Grade Level CFAs, Compass Learning Odyssey, Rubrics, Checklists, ~~- Leveled Literacy Intervention (LLI),~~ Formal scales, Pivot **Benchmark Assessments-** ~~Lexile (SRI), Quantile (SMI), writing assessment, spelling inventory, Acuity,~~ quarterly standards based assessments, ~~SPI~~ **External Summative Assessments-** DIAL, ESGI, ISTEP+, IREAD3, ~~ECA, ReadiStep,~~ PSAT, PSAT 8/9, PSAT NWSQT, SAT, WorkKeys, AP Exams, ISTAR, WIDA, ~~NWEA~~Portfolios**,** Certiport Certifications
Timeframe for Implementation: ~~2012 –~~2016-17

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: Indiana Academic Standards 1. All students will increase Problem Solving through monitoring progress on Indiana Academic Standards and Mathematical Practices. A. School City of Hobart's Balanced Assessment System Framework B. Using Indiana Academic Standard 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 Indiana Academic State Standard's Vocabulary.	2012-2017~~6~~	-Central Office Administrators -Principals -K-12 Teachers	-School City of Hobart's Balanced Assessment System Framework - Classroom Assessments (emphasis) -Formal scales -CFAs - Conferring/Anecdotal Records - Checklists/Rubrics - Quizzes -Unit Tests - Standards-based Report Cards -Pivot -Google Apps/Classroom	- School City of Hobart's Balanced Assessment System Framework - Classroom Assessments (emphasis) -CFAs - Conferring/Anecdotal Records - Checklists/Rubrics - Math Journals/Notebooks - Standards-based Report Cards -TRC (District Web site) -Google Apps -*Balanced Assessment* by Burke -*Common Formative Assessments* by Bailey and Jakicic -*The Art of Science and Teaching* by Marzano -Professional Development Calendar - Indiana Academic Standards -Mathematical Toolboxes -SpringBoard -Envision -College Board -Khan Academy -Ask Rose -Pivot -Google Apps

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 Indiana Academic 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.	2012-2017~~2012-2016~~	-Central Office Administrators -Principals - Teachers K-12	- School City of Hobart's Balanced Assessment System Framework -Classroom Assessments -CFAs -Formal scales -Journals -Checklists/Rubrics -Conferring -Item Analysis -Pivot	- School City of Hobart's Balanced Assessment System Framework -Classroom Assessments -CFAs -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 -FASTT Math -Fraction Nation -Khan Academy -SpringBoard -Envision -Pivot

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 and comprehension across the curriculum. -Yohan's Close Reading and Graphic Organizers • Yohan's Thinkmarks • Yohan's Close Reading Marks for Breaking Down a Text • SOAPSTone (Speaker, Occasion, Audience, Purpose, Subject, Tone) • TOULIN Model (marks for breaking down a text) • Yohan's Editing Marks (Revisions and Editing An Essay) 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.	2012-2017~~2012-2016~~	-Lead: 2-12 Math/Science (varies 10-12)	-Classroom Assessments -CFAs -Formal Scales -Journals -Rubrics -ISTEP -~~NWEA~~Pivot -Envision -SpringBoard -Portfolios	-*Classroom Instruction That Works* by Robert Marzano -*Building Academic Vocabulary* by Robert Marzano -Manipulatives -Textbooks -Inquiry Materials for Science -Curriculum Maps -Yohan's Close Reading and Graphic Organizers • Yohan's Thinkmarks • Yohan's Close Reading Marks for Breaking Down a Text • SOAPSTone (Speaker, Occasion, Audience, Purpose, Subject, Tone) • TOULIN Model (marks for breaking down a text) • Yohan's Editing Marks -Smekens -*Falling in Love with Close Reading: Lessons for Analyzing Texts and Life* by Christopher Lehman, Kate Roberts, and Donalyn Miller -Pivot -Envision -SpringBoard -Portfolios -Google Apps -Troove

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

Intervention: Defined Curriculum - National or Academy Curriculum 1. Students will participate in project/problem based learning including STEM and STEAM. A. IDOE STEM B. Lego Robotics C. Code D. App Development E. 3-D Modeling and Printing 2. Students participating in career academies will use the defined curriculum set forth by the industry and/or institution that established them. A. Project Lead The Way Pre-Engineering and Technology (PLTW) B. PLTW Bio-Medical Sciences C. Cisco Academy D. Emergency Medical Service (EMS) Training Institute E. Career Pathway Courses F. AP and College Credit Classes (Concurrent Enrollment)	2012- 2017~~6~~	-Lead: Central Office Administrators -Principals -6-8 PLTW Teachers -9-12 PLTW, Cisco, EMS Teachers -9-12 Teachers	-Formal Scales -CFAs -Checklists/Rubrics -Final Exams -Articulation with Post-Secondary Institutions -Portfolios	-IDOE STEM site -District Website with STEM and STEAM -Hour of Code site -CAN -ReadyNWI -Project Lead The Way Curriculum -Purdue University -Partnership Teams -Cisco Curriculum -St. Mary Medical Center -IDOE Career Pathway Courses -AP Curriculum and Professional Development -College Curriculum and University Partnership Professional Development -CertiPort Portal for certifications -3D Printer -App Development -Google Apps -Troove

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

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. D. Students will use fluency software for facts. E. Students will use programming software. F. Students will use PLTW industry software.	2012-2017~~6~~	-Lead: K-12 Cross-curricular	-Classroom Assessments -CFAs -Formal Scales -Teacher Observation -Student Presentations -Pivot -Portfolios	~~-Tablets~~Chromebooks -Responders -iPads ~~-SmartBoards~~ -Google Apps -Compass Learning Odyssey ~~-vBrick~~ -Calculators -Graphing Calculators -Professional Development Calendar -Computers & Simulation Software -Challenger Learning Center (Space Simulation) -FASTT Math -Fraction Nation -Khan Academy -Hour of Code Resources -PLTW Software -Troove -Pivot ~~-Math 180~~ ~~-My Big Campus~~

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: 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 -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 D. Alternative Learning -Opportunity Center • Out of School Suspension Program (OSSP) • Aspire (Alternative School) • Intensive Care Unit (ICU) • Credit Recovery -Academy of Success -Extended Day • Study Tables • Tutoring • CPR • Credit Recovery -Educere: Online Learning 2. Students have the opportunity to participate in peer tutoring, study tables, and ECA review sessions.	2012-2017~~6~~	-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 -RTI Plans -Administrators - Skyward	-School City of Hobart's Balanced Assessment System Framework -Professional Learning Communities -Common Planning Time -RTI Forms - RTI Meetings ~~-Harmony~~Skyward ~~-Scholastic University~~ -RTI Policy and Guidelines -Professional Development RTI -Curriculum Materials -RTI -TRC ~~-Compass Learning Odyssey~~ -Khan Academy -Ask Rose - Peer T~~t~~utors - Study Tables ~~-Math 180~~ -Do the Math -Newsela -Readworks -College Board -Pivot *-The Revision Toobox, Second Edition: Teaching Techniques that Work* by Georgia Heard *-Teaching Argument Writing, Grades 6-12* by George Hillocks Jr. *-Falling in Love with Close Reading: Lessons for Analyzing Texts and Life* by Christopher Lehman, Kate Roberts, and Donalyn Miller *-They Say / I Say: The Moves that Matter in Academic Writing* by Gerald Graff *-Argue with Me: Argument as a Path to Developing Students Thinking and Writing* by Deanna Kuhn

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				-Envision -SpringBoard -Fraction Nation
Intervention: Instruction Support Services Students who qualify for additional services will be provided extra instructional support. A. Special Education B. English Learners (EL) C. 504 D. Y Learning Program	2012-2017~~6~~	-Lead: Central Office Administrators -Principals -K-12 Teachers -EL Coordinator -Special Education Staff -Nurses	-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~~Skyward -TRC (District Web site) -IEP Advantage -Case Conferences -504 -Y Learning Program

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES

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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 -G.T./Honors -College Credit Courses -Career Pathway Electives	2012-2017~~6~~	-Lead: Central Office Administrators -Principals -K-12 Teachers -Counselors	-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~~Skyward -TRC -AP Curriculum and Professional Development -College Curriculum and University Partnership Professional Development -High Ability Policy and Guidelines -Accelerated Classes (G.T./Honors)
Intervention: Clubs and Extra-Curricular 1. Students will participate in clubs and extracurricular activities A. Academic Support B. Academic Enrichment C. Athletics D. Performing Arts E. Maker Faire	2014-2017~~6~~	-Lead: Central Office Administrators -Principals -K-12 Teachers	-Club Participation -Extra-curricular participation	-Study Tables -ISTEP/ECA Boost -CPR -Lego Robotics -Maker Faire -Academic Super Bowls -Yearbook Publishing -Broadcasting -Athletics -Performing Arts -3-D Printing -App Development -Hour of Code website

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Intervention: Family/Community Involvement 1. All students will increase problem solving skills through opportunities for family/community participation. A. ~~Harmony~~ Skyward - Assignments/Grades/Discipline/Attendance B. Family Nights - Math Games, Maker Faire C. Web site - Homework Help and Tips -Khan Academy -Ask Rose D. Compass Odyssey Learning E. Parent Teacher Meetings/Conferences F. ~~Career Cruising~~Naviance – Monitoring College and Career Planning G. ~~My Big Campus Online Digital Curriculum~~Online Assistance: -Khan Academy -Ask Rose -FASTT Math -Fraction Nation -Envision -SpringBoard	2012-2017~~6~~	-Lead: Central Office Administration -Principals -School Staff -Technology Department	-Parent/Teacher Conference Attendance -Monitoring ~~Harmony~~Skyward Usage -Monitoring Website Usage -Family Night Attendance -Portfolios	~~Harmony~~ Skyward Parent ~~Information Packet~~Portal -District Web-site ~~Khan Academy~~ ~~Ask Rose~~ -Coffee Club for Parents ~~Career Cruising~~Naviance -Online Assistance: • Khan Academy • Ask Rose • FASTT Math • Fraction Nation • Envision • SpringBoard -Other Online Resources from Teachers -Google Apps -Troove

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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 -Google Apps -Units of Study/Curriculum Calendar/Curriculum Mapping -Web Publishing with School Wires -Career Academy Curriculum Training -Skyward B. Assessment -Pivot -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 Calendar~~talog~~, Conferences, & Contracted Services	2012-2017~~6~~	-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 -Pivot -Portfolios	-School City of Hobart's Balanced Assessment System Framework -Professional Development ~~Catalog~~Calendar -Common Planning Time -Late Start Wednesdays -Professional Learning Community Meetings -RTI Training -TRC (District Web site) -Interventionists ~~-Fast ForWord~~ ~~-Scholastic University~~ -Contracted Service~~s~~ ~~-Math 180~~ -Do The Math -SpringBoard -Google Apps ~~-My Big~~