

Ridge View Elementary
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.

Expectation(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 decisions for solving problems.

Target Participants:

All students at Ridge View Elementary

Subgroups:

Students who are achieving below proficiency level.

Students who are achieving above proficiency level.

Interventions:**Curriculum, Instruction and Assessment:**

All students will increase skills in problem solving through monitoring progress on Indiana Academic Standards (IAS) to determine instructional needs.

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 will participate in project/problem based learning including STEM and STEAM.

All students will increase problem-solving skills by using technology tools **across the curriculum**.

Student Support:

Students will participate in Multi-Tiered Support System (MTSS) based on achievement and behavior levels.

Subgroup students with low performance will increase problem solving skills beyond regular classroom instruction with increased academic learning time. All students will increase problem solving skills through opportunities for family/community participation.

Students will participate in after school 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- Checklists, Rubrics, Envisions Problem Solving, Quizzes, and Unit Tests

Common Formative Assessments (CFAs)- Grade Level CFAs, Compass Learning Odyssey, Rubrics, Checklists, Formal Scales

Benchmark Assessments- quarterly standards based assessments, Pivot

External Summative Assessments- ISTEP+, ISTAR, WIDA

Timeframe for Implementation: 2017-2021

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Intervention: Indiana Academic Standards</u> 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 Standards 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 express regularity in repeated reasoning.	2017-2021	-Central Office Administrators -Principals -1-5 Teachers	-School City of Hobart's Balanced Assessment System Framework -Classroom Assessments (emphasis) -Formal Scales -CFA's - Conferring/Anecdotal Records -Checklists/Rubrics -Quizzes -Unit Tests - Report Cards -Pivot -Google Apps/Classroom	- School City of Hobart's Balanced Assessment System Framework - Classroom Assessments - CFA's - Conferring/Anecdotal Records - Checklists/Rubrics -Math Journals/Notebooks - Report Cards -TRC (District Web site) -Google Apps -<i>Balanced Assessment</i> by Burke -<i>Common Formative Assessments</i> by Bailey and Jakicic -<i>The Art of Science and Teaching</i> by Marzano

C. Using Indiana Academic Standard's Vocabulary. D. Pivot be administered to all grades to determine goal areas needing remediation for each student. E. ISTEP data will be analyzed to determine skill areas needing remediation for each student. F. Students will develop a set of problem solving strategies across the curriculum. Example: 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				-Professional Development Calendar - Indiana Academic Standards -Mathematical Toolboxes -Envision -Khan Academy -Ask Rose -Pivot -Google Apps -<i>Using Common Core Standards</i> by Robert Marzano
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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Interventions: Assessment/Differentiated Instruction for Conceptual Understanding</u> 1. All students will increase skills in problem Solving 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 to 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	2017-2021	-Lead: Administrators -1-5 Teachers - LRE Facilitator & Staff -MTSS (Rtl) Team	-School City of Hobart's Balanced Assessment System Framework -Classroom Assessments - CFA's -Pivot -Formal Scales -Journals -Checklists/Rubrics -Conferring -Item Analysis	-School City of Hobart's Balanced Assessment System Framework -Classroom Assessments -Pivot -CFA's -Manipulatives -Calculator -Software -Flash Cards -Classroom Texts -Time for Data Analysis -Various Types of Measuring Tools -Envision -Compass Learning Odyssey -Khan Academy -Fraction Nation -FASTT Math -Professional Learning Communities -Professional Development Calendar -Curriculum Maps -TRC (District

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 and study tables.				Website) -Peer Tutors -Study Tables
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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Intervention: Reasoning and Critical Thinking to Solve Problems</u> 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. B. Students will understand and choose the correct mathematical operation to solve problems across the curriculum. (Example: Similarities and Differences/Graphic Organizers - Marzano) B. Students will use mental math/estimation to understand when an exact answer is necessary or an estimate is sufficient. D. Students will develop a set of problem solving strategies. Example: 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, and compare. E. Students will problem solve independently and interactively by using probability, data analysis, and statistics across the curriculum.	2017-2021	-Lead: Administrators -1-5 Teachers -LRE Facilitator & Staff -MTSS (Rtl) Team	-Classroom Assessments -CFA's -Daily Work -Formal Scales -Checklists/Rubrics -ISTEP+ -Envision -Portfolios -Journals -Classroom Assessments	-<i>Classroom Instruction That Works</i> by Robert Marzano -<i>Choice Words</i> by Peter H. Johnston -Manipulatives -Pivot -Compass Learning Odyssey -<i>Building Academic Vocabulary</i> by Robert Marzano -Smekens -<i>Falling in Love with Close Reading: Lessons for Analyzing Texts and Life</i> by Christopher Lehman, Kate Roberts, and Donalyn Miller -Portfolios – SeeSaw -Envision -Google Apps -SCOH Balanced Assessment System Framework

ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Intervention: Defined Curriculum - National or Academy Curriculum</u> 1. Students will participate in project/problem based learning including STEM and STEAM. A. IDOE STEM B. Lego Robotics C. PLTW Launch 2. Students participating in career pathways will use the defined curriculum set forth by the industry and/or institution that established them. A. PLTW Launch (Elementary) B. Career Pathway Courses	2017-2021	-Lead: Administrators -3-5 Teachers -Elementary PLTW Teachers	-Formal Scales -CFA's -Checklists/Rubrics -Portfolios	IDOE STEM site - District Website with STEM and STEAM -Do the Math -Hour of Code site - Google apps - PLTW Resources - SeeSaw/Portfolio's - Ivy Tech

<u>Intervention: Technology Tools</u> 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 to calculate, analyze and interpret mathematical equations. C. Students may 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.	2017-2021	-Lead: Administrators -1-5 Teachers -LRE Facilitator & Staff	-School City of Hobart's Balanced Assessment System -CFAs Framework -Teacher Observation -Pivot -Student Presentations -Formal Scales -Portfolios	-Tablets -Computers -iPads -Chrome books -Calculators -Google Apps -Do The Math - Challenger Learning Center (Space Simulation) -Pivot -Seesaw/Portfolio's -PLTW Software - FASTT Math -Fraction Nation -Hour of Code Resources -Professional Development Calendar
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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Intervention:</u> Multi-Tiered Support System (MTSS) Support System (MTSS) 1. Students will participate in MTSS (RTI) Tiers based on achievement and behavior levels. A. A district-wide MTSS approach is implemented with guidelines. B. Tier II will be implemented through the intervention of "Increased Academic Learning Time" within and outside the classroom including the following: -Co-Teaching -Strategy Groups -Double Blocking Subjects -Ability (Readiness) Groups - Strategy Groups -Summer School -Counseling B. Tier II and Tier III will be implemented through intense intervention with additional support services. -Computerized Intervention Software -Individual Instruction -Small Group Instruction -Small Group Counseling -Extended Day ● Study Tables ● Tutoring ● ISTEP Boost	2017-2021	-Lead: Administrators -1-5 Teachers -LRE Facilitator -Northwest Indiana Special Education Cooperative (NWIESC) Director -MTSS Teams	-School City of Hobart's Balanced Assessment System Framework - MTSS (RTI) Guidelines - MTSS (RTI) Meetings - MTSS (RTI) Pivot Plans -Skyward -Administrators -Teacher Observations -Report Card Data -Pivot	-Time for Data Analysis -Professional Development Calendar -MTSS (RTI) Meetings -Math Manipulatives -Skyward -Khan Academy -Do The Math -Study Tables -Newsela -Readworks -Pivot -Envision -Fraction Nation -RtI Policy and Guidelines -Peer Tutors -Common Prep Time -Professional Learning Communities -TRC -Pivot -Double Blocking Subjects

<u>Intervention: Instruction Support Services</u> Students who qualify for additional services will be provided extra instructional support. A. Special Education B. English Learners (EL) C. 504 D. Double Blocking Subjects E. YMCA Achievement Gap F. After School Programming - ISTEP Boost -Tutoring -Study Tables G. Enrichment Clubs -Coding -Robotics -Book Clubs	2017-2021	-Lead: Administrators -1-5 Teachers -EL Coordinator -LRE Facilitator & Staff -Nurses - MTSS (Rtl) Team	-School City of Hobart's Balanced Assessment System Framework	-School City of Hobart's Balanced Assessment System Framework -Professional Learning Communities -YMCA Achievement Gap -Double Blocking Subjects -504 -Common Planning Time -Skyward -TRC (District Website) -IIEP - Case Conferences
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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Intervention: Family/Community Involvement</u> 1. All students will increase problem solving skills through opportunities for family/community participation. A. Skyward Assignments/Grades/Discipline/Attendance B. School City of Hobart Website - Homework Help and Tips C. Compass Learning Odyssey D. Career Cruising: Monitoring College and Career Planning E. Khan Academy F. FASTT Math-Basic Math Facts G. Family Nights H. Parent Teacher Conferences	2017-2021	-Lead: Administrators -School Staff -Technology Department	-Monitoring Skyward -Envisions - FASTT Math	-Skyward -School City of Hobart Website -Career Cruising -FASTT Math -Envisions
<u>Intervention: Professional Learning Communities</u> 1. All students will increase problem-solving skill as a result of teacher participation in professional learning communities. A. Data Analysis – Pivot, ISTEP, Classroom Assessments, Skyward B. Best Practices - Book Studies, Grade Level/Curriculum/Department Meetings C. Professional Development - In-House Professional Development Calendar D. Google Apps E. MTSS (RTI) Team	2017-2021	- Lead: Administrators -1-5 Teachers -Elementary Staff	-School City of Hobart's Balanced Assessment System Framework -Teacher Professional Growth Plans -Enrollment in Professional Development -Pivot -Grade Level Planning -Formal Scales -Curriculum Mapping - District Grade Level Meetings -Portfolios	-Professional Development Calendar -Book Studies -Data Analysis -TRC -SCOH Balanced Assessment Framework -Google Apps -Portfolios /SeeSaw -Common Planning Time

<u>Intervention: Clubs and Extra-Curricular</u> 1. Students will participate in clubs and extracurricular activities. A. Academic Support B. Academic Enrichment C. Athletics D. Performing Arts E. Maker Faire	2017-2021	- Lead: Administrators -1-5 Teachers	-Club Participation -Extra-curricular participation	-ISTEP+ Boost -Lego Robotics -Athletics -Performing Arts -Hour of Code website -Google Apps -Maker Faire -Coding Clubs -Study Tables
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ACTIONS	SCHEDULE	RESPONSIBILITIES	MONITORING	RESOURCES
<u>Intervention: Enriched and High Ability</u> 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	2017-2021	-Lead: Administrators -Teachers -Technology Department	-Skyward	-Skyward -SCOH Website -Naviance -CogAT - Pivot