

Middle School Matters Institute Implementation Plan Template

Research Platform Dimension: Mathematics and Mathematics Interventions

This template walks users through the processes of self-reflection, needs determination, and action planning to develop an overall plan for improving implementation of the **Mathematics and Mathematics Interventions** principles and practices described in the Middle School Matters Research Platform and Field Guide during the coming school year. Users will engage in the following steps for **each principle**.

Step 1: Self-Reflection

Review evidence (i.e., reliable documentation) and indicate which instructional conditions are already in place. Determine the current level of implementation for the principle, according to the rubric below (adapted from Fixsen, D. L., Naoom, S. F., Blase, K. A., Friedman, R. M., & Wallace, F. (2005). *Implementation research: A synthesis of the literature*. Tampa, FL: Louis de la Parte Florida Mental Health Institute, National Implementation Research Network). This step helps to determine whether and why implementation of each principle needs to be improved.

1. **No Implementation:** There is no evidence of implementation of this principle in your school.
2. **Exploration:** The decision has been made to implement the principle. Knowledge is being shared about the practices and conditions described. There is no systematic expectation of implementation, nor is there good evidence of it.
3. **Initial Implementation:** The principle is beginning to be implemented. There is limited evidence of implementation of the practices. Some of the conditions described are being met.
4. **Full Implementation:** The principle is being implemented. There is strong evidence of implementation of all or almost all of the practices. All or nearly all of the conditions described are being met. There is a system in place for documenting and/or measuring implementation.
5. **Sustainability:** The principle is being implemented, and processes are in place for getting new personnel up to speed. There is a system in place for providing feedback and support for improving implementation of the principle.

Step 2: Needs Determination

Classify the type of needs your school has and indicate what can be done to address those needs (e.g., determine which broad strategies can help). A **knowledge** deficit exists when educators are not aware of the principle, nor the research or evidence that supports implementation of the principle. A **translation** deficit exists when educators need support in translating knowledge about the principle into instructional practice. A **resource** deficit exists when there is a lack of systemic support (e.g., time, materials, money, staff) for implementing the principle. Finally, a **feedback** deficit exists when educators are not made aware of the quality or success of their own implementation of the principle.

Step 3: Action Planning

Outline specific strategies to improve implementation. Indicate how to implement these strategies (i.e., steps for implementation), who is responsible, and deadlines for implementation. If any principle is determined (through reflecting on the evidence) to be at level 5 (sustainability), continuing current practices would be an appropriate plan for that principle; in such a case, other principles should be the focus of improvement efforts for the upcoming school year. To allocate resources effectively and efficiently, schools should consider focusing on four or fewer principles in an academic year and looking for overlap between strategies and plans for different principles.

June 2013

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Date: _____

School: _____

Principle 1: Establish schoolwide practices for enhancing mathematics understanding within relevant content area instruction.

Review

Indicate which sources of evidence below were reviewed to determine whether each practice is in place.

- | | | |
|---|---|--|
| <input type="checkbox"/> Lesson plans | <input type="checkbox"/> Common assessments | <input type="checkbox"/> Student work samples |
| <input type="checkbox"/> Curriculum documents | <input type="checkbox"/> Classroom observations | <input type="checkbox"/> Instructional meeting agendas |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Encourage students to apply their understanding of mathematics concepts and procedures to draw conclusions and propose solutions about history, science, social studies, economics, and other content areas.

- Content area teachers (e.g., science, social studies) assign students activities and assignments that require students to apply their understanding of mathematics concepts and procedures.
- Content area teachers assign tasks in which students use mathematics to draw conclusions and propose solutions.
- Content area teachers assign tasks in which students use mathematics to summarize, illustrate, or explicate information.
- Students apply mathematics in content area courses to summarize, illustrate, or explicate information.
- Students apply mathematics in content area courses to draw conclusions and propose solutions.

Practice 2: Ask students to analyze events and phenomena from a quantitative perspective and to use their analyses to develop arguments and provide justifications.

- Content area teachers assign tasks in which students analyze events and phenomena from a quantitative perspective.
- Content area teachers assign tasks in which students use mathematical analyses to develop arguments and provide justifications.
- Students use mathematics to analyze events and phenomena from a quantitative perspective.
- Students use mathematics analyses to develop arguments and provide justifications.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 1: Establish schoolwide practices for enhancing mathematics understanding within relevant content area instruction.

Evidence

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 1: Establish schoolwide practices for enhancing mathematics understanding within relevant content area instruction.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 2: Screen all students, using a universal screener, to identify those at risk for mathematics difficulties and provide interventions to students identified as being at risk. Monitor the development of mathematics knowledge and skills in identified students.

Review

Indicate which sources of evidence below were reviewed to determine whether each practice is in place.

- | | | |
|---|---|--|
| <input type="checkbox"/> Documentation of use of a screener | <input type="checkbox"/> Documentation of interventions | <input type="checkbox"/> Documentation of cut scores used for screening |
| <input type="checkbox"/> Intervention plan or other documentation of how data are used to meet student needs with interventions | <input type="checkbox"/> Student progress monitoring documentation | <input type="checkbox"/> Agendas from meetings that focused on improving student achievement through interventions |
| | <input type="checkbox"/> Early warning indicator system or other indicator system | |

Practices

For each practice, select each condition that has been met, according to the evidence gained from reviewing supporting documentation.

Practice 1: Identify a system for screening and progress monitoring that prioritizes content and skills that are necessary for subsequent mathematics development.

- The school has a process for monitoring student progress and determining which students need intervention in mathematics.
- The school has a universal screener that includes mathematics knowledge and skills that are essential for grade-level proficiency.
- The school has a universal screener that prioritizes content and skills necessary for subsequent mathematics development (e.g., algebra readiness).
- The universal screener is used as planned to determine students in need of intervention.

Practice 2: Select a cut score for screening that balances the need to help the most students who are at risk with the resources available.

- The school has a cut score for screening that identified students of significant risk of failure, students who have some risk of failure, and students who have minimal risk of failure.
- The cut score is used in screening in a way that balances the need to help the most students who are at risk with the resources available.
- The cut score is used in selecting students in need of intervention.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 2: Screen all students, using a universal screener, to identify those at risk for mathematics difficulties and provide interventions to students identified as being at risk. Monitor the development of mathematics knowledge and skills in identified students.

Evidence

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 2: Screen all students, using a universal screener, to identify those at risk for mathematics difficulties and provide interventions to students identified as being at risk. Monitor the development of mathematics knowledge and skills in identified students.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 3: Help students recognize and expand their understanding of number systems beyond whole numbers to integers and rational numbers. Use number lines as a central representational tool in teaching this and other fraction concepts.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|---|---|--|
| <input type="checkbox"/> Lesson plans | <input type="checkbox"/> Assessments | <input type="checkbox"/> Student work samples |
| <input type="checkbox"/> Curriculum documents | <input type="checkbox"/> Student activities | <input type="checkbox"/> Classroom observation |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Use measurement activities and number lines to help students understand that fractions are numbers and share number properties.

- Teachers use measurement and number lines to illustrate that fractions have magnitude similar to whole numbers.
- Teachers assign students tasks in which students measure objects by using number lines with fractions.
- Students measure objects by using number lines with fractions.

Practice 2: Provide opportunities for students to locate and compare fractions on number lines.

- Teachers provide activities in which students locate fractions on a number line.
- Teachers provide tasks in which students compare fractions by using number lines.
- Teachers illustrate the importance of precision of measurement.
- Teachers teach students how to justify the reasonableness of an answer.
- Students locate fractions on number lines.
- Students compare fraction magnitude by using number lines.
- Students measure objects with precision by using fractions on a number line.
- Students justify the reasonableness of an answer related to measurement in fractions.

Practice 3: Use number lines to improve students' understanding of fraction equivalence, fraction density (the concept that there is an infinite number of fractions between any two fractions), and negative fractions.

- Teachers illustrate fraction density by using multiple number lines and extending number lines that use visual representations.
- Teachers illustrate negative fractions by extending number lines that use visual representations.
- Teachers illustrate the concept of how using increasingly smaller fractions results in increasingly precise values between whole numbers.
- Students identify negative fractions on number lines.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 3: Help students recognize and expand their understanding of number systems beyond whole numbers to integers and rational numbers. Use number lines as a central representational tool in teaching this and other fraction concepts.

- Students use smaller fractions to reach more precise values.
- Students compare fractions by using number lines.

Practice 4: Develop students' understanding that fractions can be represented as common fractions, decimals, and percentages, and develop students' ability to translate among these forms.

- Teachers illustrate to students how numbers can be represented in different forms (fractions, decimals, percentages).
- Teachers develop students' understanding of how to translate among fractions, decimals, and percents.
- Teachers use number lines to demonstrate equivalence between representations of rational numbers.
- Students use number lines to find equivalent fractions, decimals, and percents.
- Students translate between fractions, decimals, and percents.

Evidence

Document how you determined whether to select each of the conditions on the previous page and above.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 3: Help students recognize and expand their understanding of number systems beyond whole numbers to integers and rational numbers. Use number lines as a central representational tool in teaching this and other fraction concepts.

Evidence (cont.)

Document how you determined whether to select each of the conditions on the previous pages.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 3: Help students recognize and expand their understanding of number systems beyond whole numbers to integers and rational numbers. Use number lines as a central representational tool in teaching this and other fraction concepts.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 4: Develop students' conceptual understanding of mathematics and provide ample opportunities to improve procedural fluency.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|---|---|--|
| <input type="checkbox"/> Lesson plans | <input type="checkbox"/> Assessments | <input type="checkbox"/> Student work samples |
| <input type="checkbox"/> Curriculum documents | <input type="checkbox"/> Student activities | <input type="checkbox"/> Classroom observation |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Use area models, number lines, and other visual representations to improve students' understanding of formal computational procedures.

- Teachers use models, number lines, and other visual representations to improve student understanding of formal computational problems.
- Students use models, number lines, and other visual representations to demonstrate understanding of formal computational problems.

Practice 2: Address common misconceptions regarding computational procedures.

- Teachers identify whether a student has a misconception regarding computational procedures.
- Teachers identify the specific type of misconception a student has for a computational procedure (wrong operation, computational error, or defective algorithm).
- Teachers provide appropriate instruction to address specific misconception and to prevent chronic errors.

Practice 3: Present real-world contexts with plausible numbers for problems.

- Teachers present mathematical problems in real-world contexts that maintain the intended mathematical idea.
- Teachers use real-world contexts that are meaningful to students and relevant to their experience.
- Teachers use plausible numbers for problems assigned within real-world contexts.

Evidence

Document how you determined whether to select each of the conditions above.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 4: Develop students' conceptual understanding of mathematics and provide ample opportunities to improve procedural fluency.

Evidence (cont.)

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 4: Develop students' conceptual understanding of mathematics and provide ample opportunities to improve procedural fluency.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 5: Provide explicit and systematic instruction during intervention.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|---|---|--|
| <input type="checkbox"/> Lesson plans | <input type="checkbox"/> Assessments | <input type="checkbox"/> Student work samples |
| <input type="checkbox"/> Curriculum documents | <input type="checkbox"/> Student activities | <input type="checkbox"/> Classroom observation |
| | <input type="checkbox"/> Notes or handouts for students | |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Include explicit teacher modeling and demonstrations of key concepts and skills.

- Teachers explicitly model and demonstrate key mathematical concepts (using strategies like teacher “think-alouds”).
- Students clearly communicate appropriate mathematical steps during peer-tutoring situations.
- Students use the language of the teacher (or a peer) when working on a similar problem.

Practice 2: Gradually transition from teacher-modeled problem solving to student-directed problem solving.

- Teachers transition from modeling problem solving to student-directed problem solving.
- Teachers use questions to guide students.
- Teacher prompting fades as students become more proficient.

Practice 3: Include opportunities for students to talk aloud about the skills, knowledge, or problem-solving procedures they are learning.

- Teachers provide opportunities for students to verbalize the skills, knowledge, or problem-solving procedures they are learning.
- Teachers model thinking aloud while solving a problem, explaining the rationale for each step.
- Teachers request that students verbalize their thinking and provide a rationale for each step.
- Students verbalize their thinking and rationale for each step while solving a problem.

Practice 4: Provide immediate and corrective feedback with opportunities for students to correct errors.

- Teachers provide immediate and corrective feedback to students.
- Teachers provide students with an opportunity to correct errors after receiving immediate and corrective feedback.
- Students correct errors after receiving immediate and corrective feedback.

Practice 5: Include sufficient, distributed, and cumulative practice and review.

- Teachers provide practice and review sufficient for students to develop mastery.
- Teachers provide practice that is distributed over time to improve retention.
- Teachers provide practice that is cumulative by distributing types of problems across assignments.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 5: Provide explicit and systematic instruction during intervention.

Evidence

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 5: Provide explicit and systematic instruction during intervention.		
Deficit Types		
Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.		
<input type="checkbox"/> Knowledge	<input type="checkbox"/> Translation	<input type="checkbox"/> Feedback
Strategies		
Select which (if any) of the following strategies will be used to improve implementation of this principle.		
Knowledge: <input type="checkbox"/> Provide professional development <input type="checkbox"/> Add to team or staff meeting agenda	Translation: <input type="checkbox"/> Create organizers or manipulatives as a group <input type="checkbox"/> Review lesson plans <input type="checkbox"/> Review classroom assessments, assignments, or activities	Resource: <input type="checkbox"/> Review instructional programs <input type="checkbox"/> Review curricula <input type="checkbox"/> Review schedule or calendar
Feedback: <input type="checkbox"/> Add to observation checklist <input type="checkbox"/> Review school-level or required assessments		
Additional Strategies		
List any additional strategies you intend to use to improve implementation of this principle.		
Action Plan		
Provide concrete steps for improving the level of implementation of this principle in your school.		
<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 6: Interventions should include instruction on solving word problems that are based on common underlying structures.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|---|---|--|
| <input type="checkbox"/> Lesson plans | <input type="checkbox"/> Assessments | <input type="checkbox"/> Student work samples |
| <input type="checkbox"/> Curriculum documents | <input type="checkbox"/> Student activities | <input type="checkbox"/> Classroom observation |
| | <input type="checkbox"/> Notes or handouts for students | |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Include systematic instruction on the structural connections between known, familiar, and novel word problems.

- Teachers help students identify underlying structures of problems across a range of examples to ensure generalization.
- Teachers help students understand meaningful features of a problem that are similar to other problems with the same underlying structure, rather than focusing on only key words or other superficial features of the context.
- Teachers provide instruction and practice with known, familiar, and novel word problems.
- Students understand an underlying structure of a given problem and effectively solve the problem, using their schema for that problem type.
- Students identify meaningful features of a problem and identify the mathematical procedure or concept needed to solve the problem.

Practice 2: Teach common problem types and their structures as well as how to categorize and select appropriate solution methods for each problem type.

- Teachers teach common problem types and their structures.
- Teachers teach students how to categorize and select appropriate solution methods for each problem type.
- Given a novel problem, students identify the problem type and structure.
- Given a novel problem, students identify the appropriate solution method.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 6: Interventions should include instruction on solving word problems that are based on common underlying structures.

Evidence

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle ___

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 6: Interventions should include instruction on solving word problems that are based on common underlying structures.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 7: For students who struggle in mathematics, intervention materials should include opportunities to work with visual representations of mathematical ideas. Interventionists should be proficient in the use of these visual representations.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|--|---|--|
| <input type="checkbox"/> Individualized intervention plans | <input type="checkbox"/> Intervention assessments | <input type="checkbox"/> Student work samples |
| <input type="checkbox"/> Curriculum documents related to interventions | <input type="checkbox"/> Student activities during intervention | <input type="checkbox"/> Classroom observation |
| | <input type="checkbox"/> Notes or handouts for students | |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Employ visual representations to model mathematical concepts.

- Teachers who implement interventions use concrete representations to develop students' foundational knowledge.
- Teachers who implement interventions use visual representations of mathematical concepts to develop students' foundational knowledge.
- Students who struggle in mathematics use visual representations to develop foundational knowledge.
- Students who struggle in mathematics use concrete representations to develop foundational knowledge.

Practice 2: Explicitly link a visual representation or model with the abstract mathematical symbol or concept.

- Teachers who implement interventions include materials and instruction that explicitly link visual representations and/or concrete models to the abstract mathematical symbol or concept.
- Students make connections between visual representations or concrete models and the abstract mathematical symbol or concept.

Practice 3: Use consistent language across similar representations.

- Teachers communicate with consistent and precise language across representations of the same mathematical concept.
- Students use consistent language across representations of the same mathematical concept.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 7: For students who struggle in mathematics, intervention materials should include opportunities to work with visual representations of mathematical ideas. Interventionists should be proficient in the use of these visual representations.

Evidence

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 7: For students who struggle in mathematics, intervention materials should include opportunities to work with visual representations of mathematical ideas. Interventionists should be proficient in the use of these visual representations.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 8: Establish a schoolwide plan to identify and improve teachers' mathematical content knowledge and pedagogical content knowledge.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|---|--|---|
| <input type="checkbox"/> School professional development plan | <input type="checkbox"/> Agendas from professional development | <input type="checkbox"/> Observations |
| <input type="checkbox"/> Professional development schedule | <input type="checkbox"/> Assessments of teacher knowledge (content and pedagogy) | <input type="checkbox"/> Interviews with teachers |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Assess teachers' needs in relation to mathematics content knowledge and mathematics pedagogical content knowledge across content areas.

- Prior to providing professional development, teachers' mathematical content and pedagogical content knowledge are assessed.
- Professional development is tailored to teacher needs, based on the assessment of teachers' mathematical content and pedagogical content knowledge.
- The structure and work of professional learning communities are informed by individual teacher needs, based on the assessment of mathematical content and pedagogical content knowledge.

Practice 2: Select and implement high-quality professional development that acknowledges different teachers' needs.

- Professional development is aligned with the standards and expectations proposed by the National Staff Development Council.
- Professional development is targeted to support individual teachers' needs.
- Professional development is situated within a collaborative environment (such as a learning community).

Practice 3: Improve teachers' knowledge and understanding of making practice decisions based on research evidence and student data.

- School administrators have provided guidance and set up an expectation that instructional decisions should be based on a review of student data.
- School administrators have provided guidance and set up an expectation that instructional decisions should include the use of research- and evidence-based solutions.
- School administrators have provided guidance and set up a supportive environment for experimentation and implementation of research- and evidence-based solutions.
- Teachers use student performance data systematically gathered before, during, and after instruction to guide instructional and programmatic decisions.
- Teachers participate in professional development related to research on mathematics instruction and interventions, considering the application to their local context.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 8: Establish a schoolwide plan to identify and improve teachers' mathematical content knowledge and pedagogical content knowledge.

Evidence

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle ___

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 8: Establish a schoolwide plan to identify and improve teachers' mathematical content knowledge and pedagogical content knowledge.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 9: Discontinue using practices that are NOT associated with improved outcomes for students and teachers.

Review

Indicate which of the following sources of evidence were reviewed to determine whether each practice is in place.

- | | | |
|--|--|--|
| <input type="checkbox"/> Documentation of research supporting current practices | <input type="checkbox"/> Formative assessments | <input type="checkbox"/> Observations |
| <input type="checkbox"/> Data on effectiveness of current programs and practices | <input type="checkbox"/> Summative assessments | <input type="checkbox"/> Documentation of use of data and adjustments in instruction |
| | <input type="checkbox"/> Common assessments (benchmarks) | |

Practices

For each practice, select all conditions that have been met, according to evidence gained from reviewing supporting documentation.

Practice 1: Examine the evidentiary bases of practices currently used in teaching mathematics and identify and eliminate practices that are contra-indicated by existing evidence.

- Teachers and school administrators review research summaries and other resources for evidence regarding effective practices for teaching mathematics in the middle grades.
- Teachers and school administrators examine the evidence base of practices currently used in teaching mathematics.
- Practices not supported by research evidence or local student performance evidence are discontinued.

Practice 2: Monitor student learning formally and informally and use trend data to determine whether and how to adjust current practices.

- Teachers monitor student learning formally (e.g., using summative assessments) and informally (e.g., using observation, formative assessment) and adjust practices accordingly.
- Teachers use progress monitoring to identify students who need instructional adjustments to improve learning.
- School administrators use data at the student, classroom, and teacher levels to make programmatic changes, eliminating programs that are not working for their students.

Evidence

Document how you determined whether to select each of the conditions above.

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 9: Discontinue using practices that are NOT associated with improved outcomes for students and teachers.

Evidence (cont.)

Document how you determined whether to select each of the conditions on the previous page.

Current Implementation Level for This Principle __

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Principle 9: Discontinue using practices that are NOT associated with improved outcomes for students and teachers.

Deficit Types

Based on the evidence on the previous page, indicate what types of needs your school has for this principle. Select all that apply.

- Knowledge
 Translation
 Resource
 Feedback

Strategies

Select which (if any) of the following strategies will be used to improve implementation of this principle.

Knowledge:

- Provide professional development
 Add to team or staff meeting agenda

Translation:

- Create organizers or manipulatives as a group
 Review lesson plans
 Review classroom assessments, assignments, or activities

Resource:

- Review instructional programs
 Review curricula
 Review schedule or calendar

Feedback:

- Add to observation checklist
 Review school-level or required assessments

Additional Strategies

List any additional strategies you intend to use to improve implementation of this principle.

Action Plan

Provide concrete steps for improving the level of implementation of this principle in your school.

<u>Action</u>	<u>Person(s) Responsible</u>	<u>Deadline</u>

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Action Plan Summary		
Action	Person(s) Responsible	Deadline
Principle 1: Establish schoolwide practices for enhancing mathematics understanding within relevant content area instruction.		
Principle 2: Screen all students, using a universal screener, to identify those at risk for mathematics difficulties and provide interventions to students identified as being at risk. Monitor the development of mathematics knowledge and skills in identified students.		

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Action Plan Summary		
Action	Person(s) Responsible	Deadline
Principle 3: Help students recognize and expand their understanding of number systems beyond whole numbers to integers and rational numbers. Use number lines as a central representational tool in teaching this and other fraction concepts.		
Principle 4: Develop students' conceptual understanding of mathematics and provide ample opportunities to improve procedural fluency.		

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Action Plan Summary		
Action	Person(s) Responsible	Deadline
Principle 5: Provide explicit and systematic instruction during intervention.		
Principle 6: Interventions should include instruction on solving word problems that are based on common underlying structures.		

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Action Plan Summary		
Action	Person(s) Responsible	Deadline
Principle 7: For students who struggle in mathematics, intervention materials should include opportunities to work with visual representations of mathematical ideas. Interventionists should be proficient in the use of these visual representations.		
Principle 8: Establish a schoolwide plan to identify and improve teachers' mathematical content knowledge and pedagogical content knowledge.		

Middle School Matters Research Platform Dimension: Mathematics and Mathematics Interventions

Action Plan Summary		
Principle 9: Discontinue using practices that are NOT associated with improved outcomes for students and teachers.		