George W. Bush
Institute

Appendix:
Field Guide Summary

Research-Based Instruction

📖 Reading and Reading Interventions

Reading is an essential skill for every subject area. Thus, it is vital to establish a school culture that recognizes that every teacher is a reading teacher. Effective practices include supporting students' ability to self-monitor comprehension and develop word knowledge and providing evidence-based interventions to students who struggle to learn to read.

Principle 1: Establish schoolwide practices for enhancing reading for understanding in all content area instruction.

Practice 1: Identify key words for learning, teach at least two words per class every day, and review one word from previous instruction.

Practice 2: Instruct students to ask and answer questions while they read to monitor comprehension and learning.

Practice 3: Teach students to comprehend the relationships among ideas using graphic organizers.

Principle 2: Teach word-meaning strategies within content area classes.

Practice 1: Provide explicit instruction for important words.

Practice 2: Provide instruction in word-learning strategies.

Principle 3: Activate and build appropriate background knowledge for understanding text content.

Practice 1: Instruct students to use text to support answers.

Principle 4: Teach students to use reading comprehension strategies while reading complex text.

Practice 1: Instruct students to generate questions while reading to build comprehension.

Practice 2: Instruct students to generate main ideas at regular intervals in a text.

Principle 5: Provide intensive reading interventions to students with reading problems.

> *Practice 1:* Identify students who are two or more grade levels behind in reading and provide daily reading intervention.

Principle 6: Guide students during text-related oral and written activities that support the interpretation, analysis, and summarization of text.

> *Practice 1:* Foster discussion among small groups of students.
>
> *Practice 2:* Instruct students in how to summarize text.
>
> *Practice 3:* Enhance text understanding through teacher-guided conversations.

Principle 7: Maximize opportunities for students to read and connect a range of texts.

> *Practice 1:* Provide an advanced organizer of all of the key ideas and key words to better prepare students to read text.
>
> *Practice 2:* Read for a specified amount of time (e.g., 3 minutes) and then provide a prompt for student response.
>
> *Practice 3:* Have students participate in partner reading.

Principle 8: Organize students into collaborative groups for reading tasks.

> *Practice 1:* Implement collaborative groups with strategic reading practices to improve student outcomes.
>
> *Practice 2:* Implement team-based learning to clarify, apply, and extend students' understanding of text and content.

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

> *Practice 1:* Take stock of all of the instructional practices and models that teachers are currently implementing and determine whether they are necessary and associated with improved outcomes for students.

✎ Writing and Writing Interventions

Writing is an integral tool that supports and connects learning in all content areas in the middle grades. Students must master writing processes, knowledge, and skills. Students "learn to write" and "write to learn."

Principle 1: Establish consistent schoolwide practices for using writing as a tool to support student learning in all content areas.

Practice 1: Ask students to analyze, interpret, or personalize in writing information that has been read or presented.

Practice 2: Ask students to provide written summaries of material read or presented in class.

Practice 3: Ask students to take written notes about material read or presented in class.

Practice 4: Ask students to answer questions in writing about material read or presented in class.

Principle 2: Explicitly and systematically teach students the processes, knowledge, and skills of effective writing.

Practice 1: Analyze and emulate model text to discover the characteristics of good writing and the features of specific types of text.

Practice 2: Model and teach strategies for planning, drafting, revising, editing, and publishing written work.

Practice 3: Teach students how to construct complex sentences.

Practice 4: Refine students' spelling, grammar, and usage skills.

Principle 3: Establish word processing as the common medium for student writing.

Practice 1: Make enough word processors available in the school so that all students can use them to complete writing assignments.

Practice 2: Teach keyboarding skills and how to use word processing programs and software.

Principle 4: Assess and monitor student writing to improve instruction and identify students who require more intensive writing instruction.

Practice 1: Monitor students' progress as writers.

Practice 2: Provide students with feedback about their writing.

Practice 3: Teach students how to give one another feedback about their writing.

Practice 4: Teach students how to assess the quality of their own writing.

Principle 5: Provide extra assistance and instruction to students who experience difficulty learning to write.

Practice 1: Provide students with intensive and extra instruction to acquire the strategies, knowledge, and writing skills that still need to be mastered.

Practice 2: Teach students how to use word processing programs and software that provide assistance for targeted writing strategies and skills.

Practice 3: Provide to students experiencing difficulties intensive and extra instruction in using writing as a tool to support content learning.

Principle 6: Discontinue using practices that are NOT associated with improved outcomes for students.

Practice 1: Take stock of all of the instructional practices and models currently implemented and determine whether they are necessary and associated with improved outcomes for students.

Principle 7: Improve teacher capacity to teach writing and use it as a tool for learning.

Practice 1: Provide ongoing in-service professional development to all teachers to increase their capacity to teach writing.

Practice 2: Have teachers create learning groups to share their best writing practices and work together to discover new ones.

Mathematics and Mathematics Interventions

Mathematics includes a set of knowledge and skills used to access science, technology, engineering, and mathematics (STEM) applications and careers as well as a tool for improving reasoning and analytic thinking. Effective practices include using manipulatives to introduce mathematics concepts and applying systematic strategies for solving word problems.

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

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.

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

Principle 2: Use a universal screener to identify students at risk for mathematics difficulties and to determine interventions to provide these at-risk students. Monitor the development of mathematics knowledge and skills of identified students.

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

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

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

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

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

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

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

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

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

Practice 2: Use meaningful fact practice activities for students lacking a strong foundation in math facts.

Practice 3: Address common misconceptions regarding computational procedures.

Practice 4: Present real-world contexts with plausible numbers for problems.

Principle 5: Provide explicit and systematic instruction during instruction and intervention.

Practice 1: Include explicit teacher or peer modeling and demonstrate key concepts and skills.

Practice 2: Include worked examples of key concepts and skills.

Practice 3: Gradually transition from teacher-modeled problem solving to student-directed problem solving.

Practice 4: Include opportunities for students to talk aloud about the skills, knowledge, or problem-solving procedures they are learning.

Practice 5: Provide immediate and corrective feedback with opportunities for students to correct errors.

Practice 6: Include sufficient, distributed, and cumulative practice and review.

Principle 6: Instruction should include strategies for solving word and algebra problems that are based on common underlying structures.

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

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

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

Practice 1: Employ visual representations to model mathematical concepts.

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

Practice 3: Use consistent language across similar representations.

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

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

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

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

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

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.

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

Cognitive Science and Advanced Reasoning

Teachers can implement cognitive principles to increase the depth and efficiency of student learning across all content areas in the middle grades.

Principle 1: Distribute presentation, practice, and testing over time.

> *Practice 1:* Present material at different points in time in different contexts.
>
> *Practice 2:* Test or challenge students frequently.
>
> *Practice 3:* Use cumulative tests.

Principle 2: Ground ideas in active, engaging experiences.

> *Practice 1:* Present visual depictions of core concepts and ideas.
>
> *Practice 2:* Encourage students to manipulate aspects of core concepts.
>
> *Practice 3:* Capture content in stories.

Principle 3: Provide timely, qualitative feedback on students' learning activities.

> *Practice 1:* Give students timely and accurate feedback on their performance.
>
> *Practice 2:* Include qualitative explanations in feedback for complex material.
>
> *Practice 3:* Adjust negative feedback to what the student can emotionally handle.

Principle 4: Encourage the learner to generate content.

> *Practice 1:* Assign tasks that require writing or other forms of generation.
>
> *Practice 2:* Arrange for students to teach other students.

Principle 5: Select challenging tasks that require explanations, reasoning, and problem solving.

> *Practice 1:* Assign tasks that require explanation-based reasoning.
>
> *Practice 2:* Ask students deep questions and train students to ask deep questions.
>
> *Practice 3:* Present desirable difficulties that place the student in cognitive disequilibrium.

Principle 6: Design curricula, tasks, and tests in different contexts, media, and practical applications.

> *Practice 1:* Vary the context and applications of tasks and problems.
>
> *Practice 2:* Present learning materials through multiple media.
>
> *Practice 3:* Encourage students to construct ideas from multiple points of view and different perspectives.

Principle 7: Promote self-regulated learning.

> *Practice 1:* Train students on metacognition and strategies for self-regulated learning.
>
> *Practice 2:* Provide students with an open learning environment.

Student Supports That Enhance Learning

Dropout Prevention

Dropout prevention strategies, such as using data to identify students at risk of dropping out and providing support to improve academic performance, have been proven to reduce the risk of students disengaging from and dropping out of school.

Principle 1: Use data systems to help identify students who are at risk of falling off the path to high school graduation.

Practice 1: Use data to identify incoming students with histories of academic problems, truancy, behavioral problems, and retention.

Practice 2: Continually monitor the academic and social performance of all students.

Practice 3: Monitor students' sense of engagement and belonging in school.

Principle 2: Assign adult advocates to students who are at risk of falling off the path to high school graduation.

Practice 1: Select adults who are committed to student success.

Practice 2: Keep caseloads low.

Practice 3: Match students with adult advocates purposefully.

Practice 4: Provide training to advocates on working with students, parents, and the school staff.

Practice 5: Establish a regular time in the school day or week for advocates to meet with students.

Principle 3: Provide academic support and enrichment to improve academic performance.

Practice 1: Provide individual or small group support in test-taking skills, study skills, or targeted subject areas, such as reading, writing, or mathematics.

Practice 2: Provide extra study time and opportunities for credit recovery and accumulation through after-school, Saturday school, or summer programs.

Principle 4: Implement programs to improve behavior and social skills.

> *Practice 1:* Use adult advocates to help students establish attainable academic and behavioral goals.
>
> *Practice 2:* Recognize student accomplishments.
>
> *Practice 3:* Teach strategies to strengthen problem-solving and decision-making skills.
>
> *Practice 4:* Establish partnerships with community-based program providers and other agencies, such as social services, welfare, mental health, and law enforcement.

Principle 5: Personalize the learning environment and instructional process.

> *Practice 1:* Implement team teaching and smaller classes.
>
> *Practice 2:* Use the school schedule to create extended time in the classroom.
>
> *Practice 3:* Foster after-school activities and encourage participation in them.

School Climate, Culture, and Partnerships

Successful schools create a shared vision for high academic achievement and student success that reflects the vision of the community and is supported by the entire school staff. Schoolwide efforts to increase student attendance, promote positive behaviors, and increase student effort allow students to take full advantage of classroom instruction.

Principle 1: Create a *can do* school culture marked by a shared mission among the staff members that centers on academic achievement and a shared belief that they can collectively enable students to succeed.

Practice 1: Organize the school around teams of teachers working collectively with a common set of students that is stable and of a manageable number.

Practice 2: Establish a distributive leadership structure so that all key stakeholders are involved in school decision making and committed to do what it takes to raise student achievement, with time and effort invested in mission building among the staff.

Principle 2: Create a school environment in which mutually supportive relationships between students, teachers, and parents can develop.

Practice 1: Use surveys to gather information on school climate and culture.

Practice 2: Use teams of parents, teachers, administrators, and students to analyze survey data and to create and implement action plans based on the needs the survey identified.

Principle 3: Engage in schoolwide efforts to increase student attendance, promote positive behaviors, and increase student effort (where needed).

Practice 1: Measure and analyze data on chronic absenteeism, suspensions, and sustained mild misbehavior.

Practice 2: When chronic absenteeism and student misbehavior are at significant levels, implement evidence-based, whole-school strategies to prevent and reduce these behaviors.

Principle 4: Focus the school-family partnership on communicating to students the importance of high academic and educational aspirations and showing the steps that need to be taken to actualize these aspirations.

Practice 1: Provide parents, supportive adults, and students with information on the important role the middle grades play in high school readiness, high school graduation, and postsecondary success.

Practice 2: Create and provide parents and students with ready access to high school readiness benchmarks.

Practice 3: Make adult participation a critical part of your process.

Principle 5: Conduct student-need and asset analyses and select community partners and supports based on student need. Design and manage a plan to link community supports to success in school and use common metrics to gauge their impact.

Practice 1: Create and maintain on-site, in-school coordination and monitoring of community support programs.

★ Student Behavior and Motivation

A schoolwide behavior support system can improve attendance and behavior by instructing students in a consistent manner, reaching out to students who struggle in behavioral areas, intervening with research- and evidence-based interventions, and recognizing students and classes that reach their attendance and behavioral goals.

Principle 1: Consistently teach, model, and recognize appropriate and positive academic and social behaviors across all classrooms.

Practice 1: Modify and reduce maladaptive classroom behavior through consistent teaching, modeling, and recognition of positive classroom behaviors.

Principle 2: Provide classroom instruction in self-monitoring and regulation, academic organization and study skills, goal setting, persistence, and healthy behaviors.

Practice 1: Teach academic and healthy behaviors that support success in school.

Practice 2: Embed the self-monitoring and regulation, academic organization and study skills, goal-setting, persistence, and healthy behavior skills into the academic courses students take throughout the middle grades.

Practice 3: Provide students with opportunities to practice and employ these skills through service learning projects, as well as high interest and participatory electives with strong cognitive content like drama, debate, and robotics.

Principle 3: Establish processes for identifying problem behaviors early, diagnosing their causes, identifying effective interventions, applying the interventions at the scale and intensity required, and monitoring their effectiveness.

Practice 1: Implement an intervention framework generalized to student attendance, behavior, and course performance.

Practice 2: Connect teachers to one another or to mentors to help with ongoing problem solving, student behavior, and any other classroom management needs.

Principle 4: Make the value of schooling personal.

> *Practice 1:* Engage students in activities that allow them to reflect on the influence school will have on their future life and goals.

Principle 5: Create a sense of belonging for all students.

> *Practice 1:* Include information on social integration in middle school transition programs.

> *Practice 2:* Carefully frame academic tasks to reduce the risk of stereotype threats.

Principle 6: Connect students' academic success to effort.

> *Practice 1:* Set high expectations for students and clearly communicate those expectations and the belief in their potential to succeed when providing feedback to students.

> *Practice 2:* Eliminate the use of indiscriminate incentive programs and unearned praise.

Extended Learning Time

Successful middle schools provide students with opportunities to learn outside the school day that connect and align with students' existing academic programs.

Principle 1: Align the Extended Learning Time (ELT) program academically with the school day.

Practice 1: Use ELT program coordinators to develop relationships and maintain ongoing communication between schools and the ELT program about student academic performance and personal and social issues.

Practice 2: Designate a school staff person to coordinate communication with ELT programs.

Practice 3: Connect ELT instruction to school instruction by identifying school goals and learning objectives.

Practice 4: Coordinate with the school to identify staff for ELT programs.

Principle 2: Maximize student participation and attendance.

Practice 1: Design program features to meet the needs and preferences of students and parents.

Practice 2: Promote awareness of the ELT program within schools and to parents.

Practice 3: Use attendance data to identify students facing difficulties in attending the program.

Principle 3: Adapt instruction to individual and small group needs.

Practice 1: Use formal and informal assessment to inform academic instruction.

Practice 2: Break students into small groups and use one-on-one tutoring if possible.

Practice 3: Provide professional development and ongoing instructional support to ELT instructors.

Principle 4: Provide engaging learning experiences.

Practice 1: Make learning relevant by incorporating practical examples and connecting instruction to student interests and experiences.

Practice 2: Make learning active through collaborative learning and hands-on academic activities.

Practice 3: Build adult-student relationships among ELT program participants.

Principle 5: Assess program performance and use the results for program improvement.

Practice 1: Develop an evaluation plan for ELT programs.

Practice 2: Collect program and student performance data.

Practice 3: Analyze the data and use findings for program improvement.

nformed Decision Making

Performance Management

This approach builds the capacity of educators to use data to prioritize activities that (a) advance core goals, (b) measure progress toward meeting those goals, and (c) make informed decisions regarding the best ways to improve student achievement. Specifically, performance management strategies can aid schools in effectively using data at the school and classroom levels to improve instruction and learning, monitor progress toward goals, and evaluate the effectiveness of decisions.

Principle 1: Establish and communicate a strong commitment to evidence-based decision making.

Practice 1: The principal establishes a schoolwide data team with ongoing responsibility for promoting and ensuring effective data use.

Practice 2: Develop a data-use plan that articulates activities, roles, and responsibilities.

Practice 3: Develop common understanding of key terminology among all data users.

Principle 2: Identify and monitor indicators aligned with campus goals.

Practice 1: Review lagging data to determine performance goals.

Practice 2: Determine indicators for measuring progress toward goals.

Practice 3: Establish targets for indicators based on school goals.

Principle 3: Guide and support teachers in the use of data to meet the needs of students and to support them in reaching their goals.

> *Practice 1:* Provide targeted professional development and ongoing data support.
>
> *Practice 2:* Designate a school-based facilitator who meets with teachers to discuss data.
>
> *Practice 3:* Dedicate structured time for staff collaboration.
>
> *Practice 4:* Organize and prepare a variety of data about students and student learning.
>
> *Practice 5:* Interpret data and develop theories about how to improve student learning.
>
> *Practice 6:* Modify instruction to test theories and increase student learning.

Principle 4: Guide and support parents and students to stay on track to postsecondary success by selecting goals and monitoring their progress toward those goals.

> *Practice 1:* Explain expectations and assessment criteria.
>
> *Practice 2:* Provide feedback to students that is timely, specific, well formatted, and constructive.
>
> *Practice 3:* Provide tools that help students learn from feedback.
>
> *Practice 4:* Use students' data analyses to guide instructional changes.

Principle 5: Ensure that school-level and student data needs are incorporated into districtwide data management system planning and implementation.

> *Practice 1:* Involve a variety of stakeholders in defining user requirements for the system.
>
> *Practice 2:* Plan and implement a data system.