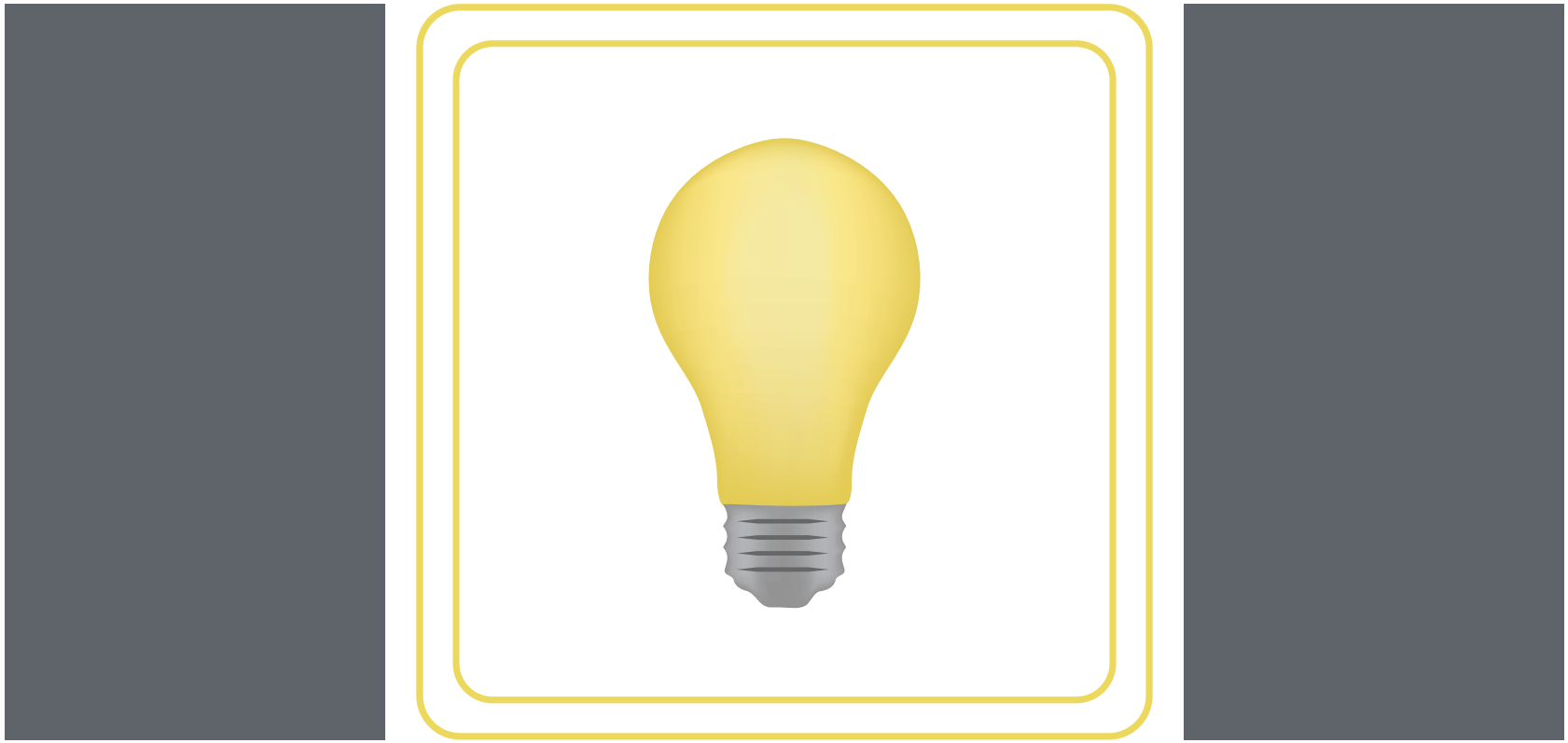
MIDDLE SCHOOL MATTERS INSTITUTE

GEORGE W. BUSH INSTITUTE

The Meadows Center FOR PREVENTING EDUCATIONAL RISK

Self-Assessment: Cognitive Science and Advanced Reasoning



Middle School Matters Institute
An initiative of the George W. Bush Institute in partnership with
The Meadows Center for Preventing Educational Risk

About The Self-Assessment

Before developing specific implementation goals, educators must take stock of which research-based practices are already in place and which practices are lacking or need improvement. This template guides users through a self-reflection process for **cognitive science and advanced reasoning** practices implemented throughout all content areas. Users should follow these steps for **each principle**.

Instructions

Step 1: Convene a Middle School Matters Leadership team and set aside 1-2 hours for the self-assessment.

Step 2: Gather all available data (see page 4).

Step 3: Assess current instructional practices, using data gathered in step 2, and indicate which instructional traits are implemented: a) consistently, b) inconsistently, or c) not at all.

Consult the MSM Field Guide for more information:

https://greatmiddleschools.org/wp-content/uploads/2016/06/3d_FieldGuideCognitiveScience_July19.pdf

Step 4: Summarize assessment results and determine the level of implementation according to the rubric (adapted from Fixsen, Naoom, Blase, Friedman, & Wallace, 2005).

1. **No Implementation:** No evidence of implementation.
2. **Exploration:** Willingness to implement, but little to no evidence of actual implementation. May be in planning stage.
3. **Initial Implementation:** Evidence indicates that implementation has begun but is largely inconsistent.
4. **Full Implementation:** Strong evidence of implementation of all or most of the traits and practices.
5. **Sustainability:** Strong evidence of implementation with processes in place for continued implementation in the future.

Next Steps: Goal Setting and Action Planning

After conducting this self-assessment, select a few key principles to focus on for the upcoming school year. Using the MSMI Action Plan Template (https://greatmiddleschools.org/resources/action-plan-templates/), develop measurable goals with specific action steps and deadlines for each chosen principle.

Self-Assessment: Cognitive Science and Advanced Reasoning

Applicable Throughout All Content Areas

Date: _____ School _____ District _____

Participating team members: _____

Sources of Data:

State/District Curriculum

- ☐ Scope and sequence of ELA, math, science, social studies, and elective curricula
- ☐ State standards for ELA, math, science, social studies, and elective classes
- ☐ Assessment calendar for each course

School/Teacher Instructional Delivery

- ☐ Range of lesson plans for ELA, math, science, social studies, and elective classes
- ☐ Walk-through or classroom observations for ELA, math, science, social studies, and elective classes
- ☐ Notes from department team meetings or grade level team meetings
- ☐ List of professional development sessions provided or attended over the past year
- ☐ Description of intervention groups/intervention classes, including schedule and curriculum

Student Demographic and Performance Data

- ☐ Demographics, including number of English learners and students in special education
- ☐ Course passing rates for ELA, math, science, social studies, and elective classes
- ☐ Scores from state assessments and end-of-course assessments
- ☐ Scores from standardized achievement tests
- ☐ Scores from interim assessments and/or curriculum-based assessments
- ☐ List of students receiving intervention and their progress within those interventions

Principle 1: Distribute presentation, practice, and testing over time.			
Consistently	Inconsistently	Not at All	**Practice 1: Present material at different points in time in different contexts.**
☐	☐	☐	a) Teachers present the same or similar material at different times throughout the course.
☐	☐	☐	b) Teachers present the same idea in different contexts to help students understand it from a different perspective.
Consistently	Inconsistently	Not at All	**Practice 2: Test or challenge students frequently.**
☐	☐	☐	a) Teachers frequently use tests, quizzes, or assignments to improve learning and retention.
☐	☐	☐	b) Teachers frame such activities as "challenges"—or another more motivating term—instead of always labeling these as "tests" or "homework."
Consistently	Inconsistently	Not at All	**Practice 3: Use cumulative tests.**
☐	☐	☐	a) Teachers give cumulative tests to encourage students to restudy earlier course material and thereby distribute their practice.
Insert Total	Insert Total	Insert Total	**Current Level of Implementation**
_____	_____	_____	☐ Level 1: No Implementation ☐ Level 2: Exploration ☐ Level 3: Initial Implementation ☐ Level 4: Full Implementation ☐ Level 5: Sustainability

Principle 2: Ground ideas in active, engaging experiences.			
Consistently	Inconsistently	Not at All	**Practice 1: Present visual depictions of core concepts and ideas.**
☐	☐	☐	a) Teachers use pictures, diagrams, graphs, or other visual depictions of core concepts.
☐	☐	☐	b) Abstract concepts are presented with an accompanying visual image.
Consistently	Inconsistently	Not at All	**Practice 2: Encourage students to manipulate aspects of core concepts.**
☐	☐	☐	a) Teachers provide students with opportunities to actively manipulate aspects of core concepts (e.g., hands-on activities to explore science concepts, graphing activities to explore mathematics concepts).
Consistently	Inconsistently	Not at All	**Practice 3: Capture content in stories.**
☐	☐	☐	a) Teachers use stories to bring abstract content to life to improve student understanding.
☐	☐	☐	b) Teachers weave essential concepts into stories that have concrete agents, spatial settings, objects and parts of objects, and organized action sequences.
Insert Total	Insert Total	Insert Total	**Current Level of Implementation**
_____	_____	_____	☐ Level 1: No Implementation ☐ Level 2: Exploration ☐ Level 3: Initial Implementation ☐ Level 4: Full Implementation ☐ Level 5: Sustainability

Principle 3: Provide timely, qualitative feedback on students' learning activities.			
Consistently	Inconsistently	Not at All	**Practice 1: Give students timely and accurate feedback on their performance.**
☐	☐	☐	a) Teachers provide timely and accurate feedback to students about their ideas, answers, test items, solutions, writing performances and other tasks.
☐	☐	☐	b) Teachers incorporate, but do not solely rely upon, computer programs that provide students with immediate feedback.
Consistently	Inconsistently	Not at All	**Practice 2: Include qualitative explanations in feedback for complex material.**
☐	☐	☐	a) Teachers explain why answers are correct or incorrect rather than simply giving numerical scores or positive/negative feedback.
☐	☐	☐	b) Teachers identify the elements in an answer that are problematic or particularly good (e.g., "This statement is false.").
☐	☐	☐	c) Teachers' explanations provide steps in a logical way or give causal justification for the feedback (e.g., "This word is incorrect because _____.").
☐	☐	☐	d) Teachers contrast a faulty piece of information with a correct piece of information (e.g., "The numbers should decrease rather than increase because _____.").
Consistently	Inconsistently	Not at All	**Practice 3: Adjust negative feedback to what the student can emotionally handle.**
☐	☐	☐	a) Teachers provide specific and targeted feedback so that students are not overwhelmed with large amounts of negative feedback (e.g., teachers withhold feedback about unimportant or impertinent errors).
☐	☐	☐	b) Teachers modify assignments to meet the needs of students and to provide an appropriate level of challenge so that students can receive appropriate feedback to advance their learning.

Principle 3: Provide timely, qualitative feedback on students' learning activities.			
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Principle 4: Encourage the learner to generate content.			
Consistently	Inconsistently	Not at All	**Practice 1: Assign tasks that require writing or other forms of generation.**
☐	☐	☐	a) Teachers assign tasks that require students to generate ideas, write, perform actions, solve problems, and reason.
☐	☐	☐	b) Teachers assign tasks that require active participation rather than passive receipt of information.
Consistently	Inconsistently	Not at All	**Practice 2: Arrange for students to teach other students.**
☐	☐	☐	a) Teachers provide students with opportunities to work with and teach one another (peer teaching and peer tutoring).
☐	☐	☐	b) All students have the opportunity to be a teacher or tutor.
Insert Total	Insert Total	Insert Total	**Current Level of Implementation**
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Principle 5: Select challenging tasks that require explanations, reasoning, and problem solving.			
Consistently	Inconsistently	Not at All	**Practice 1: Assign tasks that require explanation-based reasoning.**
☐	☐	☐	a) Teachers assign challenging tasks that require students to explain their reasoning.
☐	☐	☐	b) Students are required to explain how one action or event can cause another (cause-effect).
☐	☐	☐	c) Students are required to define a problem and its potential causes, identify all possible solutions, and select an optimal solution (problem-solution).
☐	☐	☐	d) Students are required to make a claim, use evidence to support it, and provide an oral or written justification (claim-evidence).
☐	☐	☐	e) Students are required to review claims and evidence at detailed levels, determine whether sufficient evidence exists to support each particular claim or group of claims, and draw a logical conclusion (claims-logical conclusion).
Consistently	Inconsistently	Not at All	**Practice 2: Ask students deep questions and train students to ask deep questions.**
☐	☐	☐	a) Teachers ask students deep questions using prompts such as why, how, what if, what if not, and so what to extend beyond shallow questions such as who, what, where, and when.
☐	☐	☐	b) Students answer deep questions by constructing explanations that help them achieve a deeper standard of comprehension.
☐	☐	☐	e) Students are trained to ask deep questions independently and construct explanations accordingly.
Consistently	Inconsistently	Not at All	**Practice 3: Present desirable difficulties that place the student in cognitive disequilibrium.**
☐	☐	☐	a) Teachers present challenges that involve obstacles to goals, contradictions, system breakdowns, trade-offs, anomalies, and other types of desirable difficulties.
☐	☐	☐	b) Teachers create cognitive disequilibrium in order to stimulate deep questioning, explanations, reasoning, and problem solving.

Principle 5: Select challenging tasks that require explanations, reasoning, and problem solving.			
Insert Total	**Insert Total**	**Insert Total**	**Current Level of Implementation**
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Principle 6: Design curricula, tasks, and tests in different contexts, media, and practical applications.			
Consistently	Inconsistently	Not at All	**Practice 1: Vary the context and applications of tasks and problems.**
☐	☐	☐	a) Teachers assign tasks and problems in different contexts and practical applications.
☐	☐	☐	b) Teachers use variability to provide students with opportunities to apply knowledge and skills in new situations.
Consistently	Inconsistently	Not at All	**Practice 2: Present learning materials through multiple media.**
☐	☐	☐	a) Teachers present information through a variety of modes: graphics with text, graphics with spoken descriptions, speech sounds with printed words, and other combinations.
☐	☐	☐	b) Teachers use graphic depictions with spoken descriptions, which are particularly effective for subject matters in science and technology.
Consistently	Inconsistently	Not at All	**Practice 3: Encourage students to construct ideas from multiple points of view and different perspectives.**
☐	☐	☐	a) Teachers ask students to assess claims from different points of view, using different empirical evidence, and by including both pros and cons.
☐	☐	☐	d) Teachers ask students to justify a position in a debate that is opposite to what they believe to support cognitive flexibility.
Insert Total	Insert Total	Insert Total	**Current Level of Implementation**
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Principle 7: Promote self-regulated learning.			
Consistently	**Inconsistently**	**Not at All**	**Practice 1: Train students on metacognition and strategies for self-regulated learning.**
☐	☐	☐	a) Teachers use explicit instruction in different contexts and practical applications that is well-designed, structured, scaffolded, and intensive.
☐	☐	☐	b) Teachers use a long-term, gradual release model to instruct students in metacognitive and self-regulated learning strategies that help with time management including: 1. setting goals 2. formulating plans to achieve goals 3. monitoring progress on goals 4. revising goals in the face of feedback 5. applying relevant learning strategies 6. reflecting on learning activities to improve the goal-setting process
☐	☐	☐	c) Teachers require students to give feedback about content, allowing them to learn how to accurately evaluate how well they comprehend material.
Consistently	**Inconsistently**	**Not at All**	**Practice 2: Provide students with an open learning environment.**
☐	☐	☐	a) Teachers create an open learning environment that allows students to take responsibility for their learning by: 1. selecting resources to learn more about a topic 2. gathering and manipulating data to understand the problem 3. working with peers
☐	☐	☐	b) Teachers provide individual students with detailed feedback about their mastery of different aspects of learning.
☐	☐	☐	c) Students use this detailed feedback as a guide to select which knowledge, skills, and strategies to focus upon for mastery.

Principle 7: Promote self-regulated learning.			
Insert Total	**Insert Total**	**Insert Total**	**Current Level of Implementation**
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