

The background of the cover is a solid light blue color. On the left side, there are several overlapping, glowing white lines that curve and loop, creating a sense of movement and depth. These lines are thicker in some areas and fade out in others, giving them a soft, ethereal appearance.

STRATEGIES THAT APPEAR IN
ALL TYPES OF LESSONS

Reflecting on Learning

THE **MARZANO COMPENDIUM** OF
INSTRUCTIONAL STRATEGIES



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INTRODUCTION

In 2007, Dr. Robert J. Marzano published *The Art and Science of Teaching: A Comprehensive Framework for Effective Instruction*. The framework, composed of three lesson segments, ten design questions, and forty-one elements, was based on research showing that teacher quality is one of the strongest influences on student achievement—that is, an effective teacher can positively and significantly impact student learning. As such, *The Art and Science of Teaching* sought to identify specific action steps teachers could take to improve their effectiveness.

In 2015, Dr. Marzano updated *The Art and Science of Teaching* framework to reflect new insights and feedback. The Marzano Compendium of Instructional Strategies is based on this updated model, presenting forty-three elements of effective teaching in ten categories. Each folio in the series addresses one element and includes strategies, examples, and reproducible resources. The Compendium and its folios are designed to help teachers increase their effectiveness by focusing on professional growth. To that end, each folio includes a scoring scale teachers can use to determine their proficiency with the element, as well as numerous strategies that teachers can use to enact the element in their classrooms. Indeed, the bulk of each folio consists of these strategies and reproducibles for implementing and monitoring them, making the Compendium a practical, actionable resource for teachers, instructional coaches, teacher mentors, and administrators.

REFLECTING ON LEARNING

This element involves the teacher engaging students in activities that help them reflect on their learning and the learning process. The teacher might ask students to reflect on what they have learned, what confusion or questions they might have about the information, how their knowledge of a topic has changed over time, and what they can do to improve their learning. Asking students to identify and record this information draws attention to and enhances the learning process.

Monitoring This Element

There are specific student responses that indicate this element is being effectively implemented. Before trying strategies for the element in the classroom, it is important that the teacher knows how to identify the types of student behaviors that indicate the strategy is producing the desired effects. General behaviors a teacher might look for include the following.

- When asked, students explain what they are clear about and what they are confused about.
- When asked, students can describe how hard they tried.
- When asked, students can explain what they can do to enhance their learning.

Desired behaviors such as these are listed for each strategy in this element.

Teachers often wonder how their mastery of specific strategies relates to their mastery of the element as a whole. Successful execution of an element does not depend on the use of every strategy within that element. Rather, multiple strategies are presented within each element to provide teachers with diverse options. Each strategy can be an effective means of implementing the goals of the element. If teachers attain success using a particular strategy, it is not always necessary to master the rest of the strategies within the same element. If a particular strategy proves difficult or ineffective, however, teachers are encouraged to experiment with various strategies to find the method that works best for them.

Scoring Scale

The following scoring scale can help teachers assess and monitor their progress with this element. The scale has five levels, from Not Using (0) to Innovating (4). A teacher at the Not Using (0) level is unaware of the strategies and behaviors associated with the element or is simply not using any of

Reflecting on Learning

the strategies. At the Beginning (1) level, a teacher attempts to address the element by trying specific strategies, but does so in an incomplete or incorrect way. When a teacher reaches the Developing (2) level, he or she implements strategies for the element correctly and completely, but does not monitor their effects. At the Applying (3) level, a teacher implements strategies for the element and monitors their effectiveness with his or her students. Finally, a teacher at the Innovating (4) level is fluent with strategies for the element and can adapt them to unique student needs and situations, creating new strategies for the element as necessary.

Scale for Reflecting on Learning

4	3	2	1	0
Innovating	Applying	Developing	Beginning	Not Using
I adapt behaviors and create new strategies for unique student needs and situations.	I engage students in reflecting on their own learning and the learning process, and I monitor the extent to which students self-assess their understanding and effort.	I engage students in reflecting on their own learning and the learning process, but I do not monitor the effect on students.	I use the strategies and behaviors associated with this element incorrectly or with parts missing.	I am unaware of strategies and behaviors associated with this element.

The following examples describe what each level of the scale might look like in the classroom.

Not Using (0): A teacher moves from one lesson to the next without asking students to think about what they have learned.

Beginning (1): A teacher asks students to think about the information they have just learned at the conclusion of a lesson, but does not provide specific guidance.

Developing (2): A teacher poses specific questions to students to prompt them to think about what they have learned and explore the learning process. However, he does not record or monitor their answers.

Applying (3): A teacher poses specific questions to students to prompt them to think about what they have learned and explore the learning process. He asks students to record their thoughts, and regularly reviews these journals with them to evaluate their progress and help them adjust their approach to learning.

Innovating (4): A teacher uses various strategies to engage students in reflection on their own learning and the learning process. When she notices that a particular student is having difficulty improving his learning in a specific content area, she leads him in an examination of his past efforts in other content areas to identify the practices that led to subsequent improvement.

STRATEGIES

Each of the following strategies describes specific actions that teachers can take to enact this element in their classrooms. Strategies can be used individually or in combination with each other. Each strategy includes a description, a list of teacher actions, a list of desired student responses, and suggestions for adapting the strategy to provide extra support or extensions. Extra support and extensions relate directly to the Innovating (4) level of the scale. Extra support involves steps teachers can take to ensure they are implementing the strategy effectively for all students, including English learners, special education students, students from low socioeconomic backgrounds, and reluctant learners. Extensions are ways that teachers can adapt the strategy for advanced students. In addition, some strategies include technology tips that detail ways teachers can use classroom technology to implement or enhance the strategy. Finally, each strategy includes further information, practical examples, or a reproducible designed to aid teachers' implementation of the strategy.

Reflective Journals

Students use a portion of their academic notebooks to respond to reflection questions. Questions might prompt students to reflect on what predictions they made about the day's lesson that were correct or incorrect, what information in the lesson was easy or difficult to understand, how well they understand the major material the class is studying, how well they think they did during the day, or what they think they could have done better during the day. Reflective journals are not intended to be complete, finished products; instead, they are living documents that give students the freedom to change, revise, and restructure their understanding.

Teacher Actions

- Designating a portion of students' academic notebooks to be used for reflection
- Asking questions that prompt students to reflect on their learning during a lesson
- Asking students to identify what they could have done to improve their learning during a lesson

Desired Student Responses

- Explaining what they learned during a lesson
- Identifying information they learned well and information they didn't learn well during a lesson
- Explaining what they could have done to improve learning during a lesson

Extra Support

- Selecting one reflection question for students to respond to after each lesson and providing sample answers for that question

Extension

- Asking students to find connections between their answers to multiple reflection questions (for example, What information was difficult to understand? and What could you have done better today?)

Technology Tips

- Have students use cloud-based software (such as Google Drive) to create online reflective journals that can be accessed from a variety of devices at any location.
- Use audio recording software (such as Audacity) or speech-to-text apps (such as Dragon Dictation) to have students record auditory reflective journals.
- Use blogs and wikis to enable students to pool their collective understanding, engage in cooperative reflection, and easily record ideas to share with the whole class.

Reflective Journal Entry Template

Name: _____ Date: _____

What information, process, or other content did you learn about today?

How do you feel about what you learned today? What parts were easy? What parts were hard?

What did you do well today?

What could you have done better today?

If your teacher gave you an additional question to answer, record the question here:

Write your answer here:

Think Logs

Students reflect on specific cognitive skills (for example, classification, drawing inferences, decision making, creative thinking, or self-regulation) that were emphasized during a lesson. Prompts might include asking students how they would explain classification to a friend, asking them to describe an inference they drew during the day, or asking them how comfortable (or uncomfortable) they are with the decision-making process.

Teacher Actions

- Asking students to identify specific cognitive skills they used during a lesson
- Asking students to identify specific cognitive skills they could use to improve their learning during future lessons

Desired Student Responses

- Explaining the cognitive skills they used during a lesson
- Identifying cognitive skills they could have used to improve learning during a lesson

Extra Support

- Selecting one question about cognitive skills for students to respond to after each lesson and providing sample answers for that question

Extension

- Asking students to find connections between their answers to multiple questions about cognitive skills (for example, What part of the problem-solving process was most difficult? and What do you do when you encounter information you don't understand?)

Examples of Cognitive Skills

Cognitive Skill	Description
Generating conclusions	Combining segments of known information to form a new idea
Identifying logical errors	Looking at an argument or idea to see if it makes logical sense
Presenting and supporting claims	Giving evidence to support a claim or conclusion
Navigating digital sources	Finding relevant and reliable information from electronic sources
Problem solving	Overcoming an obstacle or other limiting situation to accomplish a goal
Decision making	Using specific criteria in order to select the best choice from among a group of alternatives that at first appear to be equal
Experimenting	Coming up with and testing explanations for something that has been observed
Investigating	Looking for any sort of confusions or contradictions in an idea or event and then looking for ways to resolve them
Identifying basic relationships between ideas	Studying how one idea is related to another
Generating and manipulating mental images	Forming a mental picture of information in order to understand it better

Exit Slips

At the end of a lesson, students respond to specific reflective questions on an “exit slip” that they fill out before leaving the room. Exit slip questions might include:

- What are the main ideas of today’s lesson?
- What do you feel most and least sure about?
- Do you have specific questions about today’s lesson?
- With which aspects of today’s class work were you successful?

Teacher Actions

- Asking students to respond to reflective questions before leaving the room
- Evaluating students’ responses to identify misconceptions and areas of confusion

Desired Student Responses

- Completing exit slips and turning them in to the teacher
- Writing down misconceptions or areas of confusion on exit slips

Extra Support

- Selecting one reflective question for students to respond to on an exit slip and providing sample answers for that question

Extension

- Saving students’ exit slips over the course of a unit, then asking students to compare the slips at the end of the unit and make generalizations about their learning during the unit

Sample Reflective Exit Slip Questions

- What are the main ideas of today’s lesson?
- What parts of the lesson do you feel most sure about?
- What parts of the lesson do you feel least sure about?
- Do you have specific questions about today’s lesson?
- With which aspects of today’s classwork were you most successful?
- With which aspects of today’s classwork were you least successful?
- What could you do differently to improve your work?
- What could you do differently to improve your learning?

Knowledge Comparison

Students compare their current level of knowledge on a topic, or level of competence with a procedure, to their previous levels of knowledge or competence. Students can use diagrams or flowcharts to show the progression of their knowledge gain. For example, students might create a chart showing the increase in the number of vocabulary terms they have learned.

Teacher Actions

- Helping students compare their current level of knowledge about a topic to previous levels
- Helping students show their knowledge growth using a chart, graph, or diagram
- Helping students identify what they did to increase their knowledge about a topic

Desired Student Responses

- Explaining their current and previous levels of knowledge about a topic
- Explaining what they did to increase their knowledge about a topic

Extra Support

- Creating a list of strategies and techniques that students in the class found particularly useful in boosting their knowledge gain and posting the list in a place where all students can see it

Extension

- Asking students to examine a graph showing their knowledge gain over a unit to identify strategies and techniques that were particularly useful in boosting their knowledge gain

Technology Tips

- Have students use interactive whiteboard software or online presentation software such as Prezi to diagram the connections between past learning and new learning.
- Use online word processing or spreadsheet software such as Google Drive to allow students to record reflections before and after learning new content.
- Create online templates that prompt students to show their knowledge through charts, tables, graphs, diagrams, or flowcharts.

Knowledge Comparison Chart

Name: _____

Topic: _____

Date	What I know	How I learned it	How I can improve

Summary and Notes:

Two-Column Notes

Students use two-column notes as an extended reflection activity at the end of a lesson. In the left-hand column, students record facts or other information that they found interesting from the lesson. In the right-hand column, they record their reactions, questions, and extended ideas related to the facts or information in the left-hand column.

Teacher Actions

- Helping students identify important information about a topic to record in their notes
- Prompting students to record their reactions, questions, and extended ideas about information in their notes

Desired Student Responses

- Recording important information about a topic in their notes
- Recording reactions, questions, and extended ideas about information in their notes

Extra Support

- Quickly reviewing the main ideas of a lesson before asking students to record and react to parts of the lesson they found interesting

Extension

- Asking students to select one of their reactions, questions, or extended ideas about the content to investigate in greater detail

REPRODUCIBLES

Teachers can use the following reproducibles to monitor their implementation of this element. The reproducible titled Tracking Progress Over Time helps teachers set goals related to their proficiency with this element and track their progress toward these goals over the course of a unit, semester, or year. Tracking Teacher Actions and Tracking Student Responses allow observers in classrooms to monitor specific teacher and student behavior related to this element. Teachers themselves can also use the Tracking Student Responses reproducible to document instances of student behaviors during class. The Strategy Reflection Log provides teachers a space to write down their thoughts and reflect on the implementation process for specific strategies related to this element. Finally, this section provides both a student survey and a teacher survey, the results of which provide feedback about teachers' proficiency with this element.

Tracking Progress Over Time

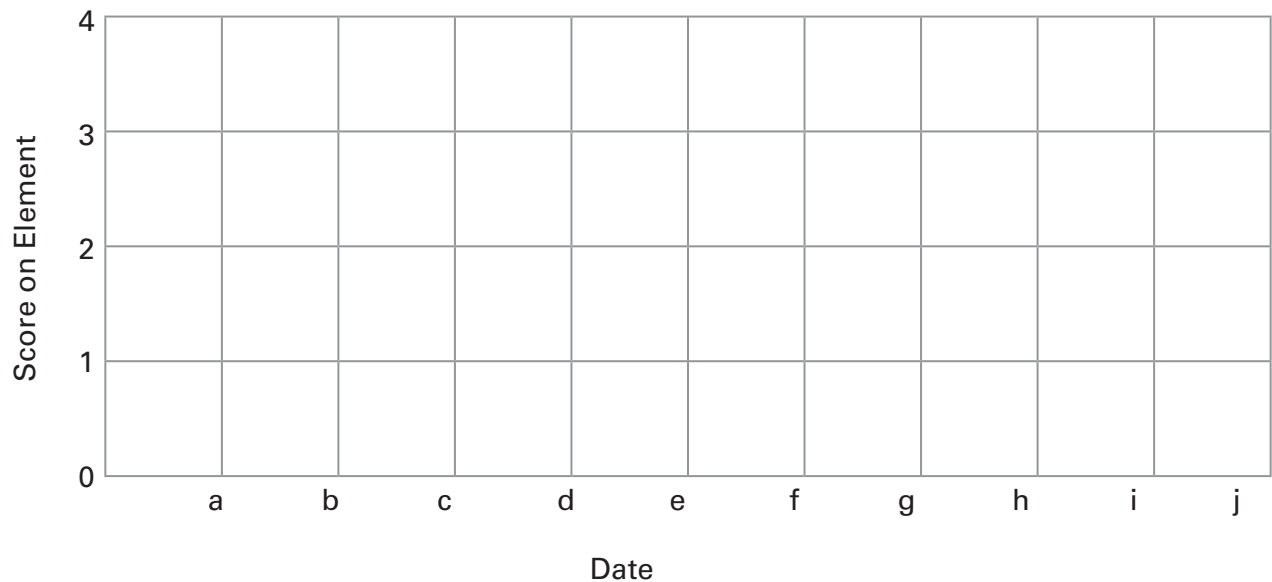
Use this worksheet to set a goal for your use of this element, make a plan for increasing your mastery, and chart your progress toward your goal.

Element: _____

Initial Score: _____

Goal Score: _____ by _____ (date)

Specific things I am going to do to improve: _____



a. _____

f. _____

b. _____

g. _____

c. _____

h. _____

d. _____

i. _____

e. _____

j. _____

Tracking Teacher Actions

During an observation, the observer can use this form to record the teacher's usage of strategies related to the element of reflecting on learning.

Observation Date and Time: _____ Length of Observation: _____

Check Strategies You Intend to Use	Strategies	Description of What Was Observed
	Reflective Journals	
	Think Logs	
	Exit Slips	
	Knowledge Comparison	
	Two-Column Notes	
	Other:	
	Other:	

Tracking Student Responses

A teacher or observer can use this worksheet to record instances of student behavior to inform planning and implementation of strategies associated with reflecting on learning. Any item followed by an asterisk is an example of undesirable behavior related to the element; the teacher should look for a decrease in the number of instances of these items.

Observation Date and Time: _____ Length of Observation: _____

Behavior	Number of Instances
Recording their reactions to and questions about important information	
Explaining what they are clear about and what they are confused about	
Describing how hard they tried	
Explaining how their knowledge of a topic has changed	
Explaining what they did to improve	
Explaining what they can do to enhance their learning	
Other:	
Other:	

Strategy Reflection Log

Use this worksheet to select a strategy, set a goal, and reflect on your use of that strategy.

Element: _____

Strategy: _____

Goal: _____

Date	How did it go?

Student Survey for Reflecting on Learning

1. My teacher asks questions that make me think about my learning.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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2. My teacher asks me to think about what I have learned.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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3. My teacher asks me to think about how I learn best.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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4. My teacher asks me to think about how hard I tried during class.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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5. My teacher asks me to think about what I am confused about.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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6. I know what I can do to improve my learning.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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Teacher Survey for Reflecting on Learning

1. I ask students to think about what they learned.

Often Sometimes Rarely Never I don't know

2. I ask students to describe or record their reactions to what they are learning.

Often Sometimes Rarely Never I don't know

3. I ask students to describe or record what they are clear about and what they are confused about.

Often Sometimes Rarely Never I don't know

4. I ask students to describe or record how hard they tried.

Often Sometimes Rarely Never I don't know

5. I ask students to describe or record what they might have done to enhance their learning.

Often Sometimes Rarely Never I don't know

6. I ask students to describe or record how their knowledge of a topic has changed over time.

Often Sometimes Rarely Never I don't know