

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 around each other, 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

Elaborating on Information

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.

ELABORATING ON INFORMATION

This element involves the teacher asking questions or engaging students in activities that require elaborative inferences that go beyond what was explicitly taught. Questions that ask students to make inferences or explain why they think something is true are more effective for increasing students' knowledge than questions that require simple recognition or recall. This element and its associated strategies help teachers to stimulate analytical thought processes that improve student achievement.

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.

- Students volunteer answers to inferential questions.
- Students provide explanations and “proofs” for inferences.

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 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)

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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 Elaborating on Information

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 ask students to elaborate on information, and I monitor the extent to which my actions affect students' responses.	I ask students to elaborate on information, 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 asks many questions during instruction, but they are almost all simple questions that only require students to recall isolated pieces of information.

Beginning (1): A teacher asks students to provide support for their answers but does not ask questions that lend themselves to requiring support.

Developing (2): A teacher asks questions that require students to categorize information and elaborate on their answers, and encourages them to make inferences, but doesn't try to determine how these questions enhance students' understanding of the content.

Applying (3): A teacher asks questions that require students to categorize information and elaborate on their answers. He uses various strategies that encourage students to make inferences, and takes note of when students build reasoned conclusions from previous information. His monitoring allows him to see that students are increasingly elaborating on information without being prompted.

Innovating (4): A teacher asks questions that require students to categorize information and elaborate on their answers. She uses various strategies that encourage students to make reasoned inferences based on their analyses of the information. For students who exhibit difficulty defending conclusions, she applies a series of detail questions, category questions, elaboration questions, and evidence questions to help them clarify their reasoning.

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.

General Inferential Questions

The teacher uses two kinds of general inferential questions: (1) default questions and (2) reasoned inference questions. *Default questions* ask students to use their background knowledge to answer questions. In short, students “default” to what they already know to come up with an answer. *Reasoned inference questions* require students to reason and draw conclusions or make predictions about information. The teacher should present explicit information that the students use as the premise from which they draw conclusions.

Teacher Actions

- Asking students questions that require them to use their background knowledge to come up with an answer
- Asking students questions that require them to generate inferences based on explicit premises

Desired Student Responses

- Using their background knowledge to answer questions without obvious answers
- Generating inferences based on premises the teacher has made explicit

Extra Support

- Taking students on virtual or real-life field trips or other knowledge-building experiences before asking default questions

Extension

- Asking students to identify their own premises when responding to reasoned inference questions

Technology Tips

- Use polling technology (clickers with text input or mobile devices with polling software) to ask inferential questions of the entire classroom and stimulate group discussion on the attributes of the responses.
- Use a document camera to magnify a content-related object to the point of unrecognizability, then prompt students to identify the object’s properties and make reasoned inferences about its identity.

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Default Questions

The following chart, from *Questioning Sequences in the Classroom* by Robert J. Marzano and Julia A. Simms (2014), can help teachers generate default questions.

Type	Questions
People	What time period is associated with this person? What places are associated with this person? What events are associated with this person? What accomplishments are associated with this person?
Organizations and groups	What beliefs are associated with this organization or group? What locations are associated with this organization or group? What time period is associated with this organization or group? What events are associated with this organization or group?
Intellectual or artistic products	What person is associated with this product? What time period is associated with this product? What event is associated with this product? What causes or consequences are associated with this product? What places are associated with this product? What values are associated with this product?
Naturally occurring objects or animals	What events are associated with this object or animal? What people are associated with this object or animal? What time period is associated with this object or animal? What locations are associated with this object or animal? What system is this object or animal a part of? What color, number/quantity, or dimension is associated with this object or animal?
Naturally occurring places	What events are associated with this place? What people are associated with this place? What time period is associated with this place? What location is associated with this place?
Manmade objects	What locations are associated with this object? How is this object used? What larger entity is this object part of? What is the process for making this object? What does this object look like? What value is associated with this object? What dangers are associated with this object?

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Type	Questions
Manmade places	<p>What events are associated with this place?</p> <p>What people are associated with this place?</p> <p>What location is associated with this place?</p> <p>What actions are performed at this place?</p> <p>What larger entity is this place part of?</p> <p>How is this place acquired or sold?</p> <p>What value is associated with this place?</p> <p>What dangers are associated with this place?</p>
Events	<p>What people are associated with this event?</p> <p>What time period or date is associated with this event?</p> <p>What places are associated with this event?</p> <p>What causes or consequences are associated with this event?</p> <p>What happened during this event?</p> <p>What equipment was used during this event?</p> <p>What problems were caused or solved by this event?</p>
Natural phenomena	<p>What places are associated with this phenomenon?</p> <p>What time is associated with this phenomenon?</p> <p>What causes or consequences are associated with this phenomenon?</p> <p>What happened/happens during this phenomenon?</p>
Physical actions	<p>What process is associated with this physical action?</p> <p>What locations are associated with this physical action?</p> <p>What purpose is associated with this physical action?</p> <p>What causes or consequences are associated with this physical action?</p>
Mental actions	<p>What process is associated with this mental action?</p> <p>What purpose is associated with this mental action?</p> <p>What causes or consequences are associated with this mental action?</p>
Feelings, conditions, or states	<p>What actions are associated with this feeling, condition, or state?</p> <p>What causes or consequences are associated with this feeling, condition, or state?</p> <p>What places are associated with this feeling, condition, or state?</p> <p>What values are associated with this feeling, condition, or state?</p> <p>How does something or someone arrive at this feeling, condition, or state?</p> <p>What dangers are associated with this feeling, condition, or state?</p>
Human constructs (ways of organizing the world)	<p>What concept does the human construct refer to?</p> <p>What measurement, quantity, or quality is associated with the human construct?</p> <p>In what way does the human construct help organize the world?</p>

Reasoned Inference Questions

To stimulate reasoned inferences, a teacher must first identify premises that will be provided to students. A premise is something that is known to be true or is assumed to be true. Typically, premises are stated as generalizations. The premise or premises a teacher selects are driven by what the teacher wants to emphasize in a given lesson. To identify the premises that will be used, a teacher might ask him- or herself “What generalizations have we addressed that I want to reinforce?” Once premises have been selected the teacher can use the following steps.

1. Provide the premise or premises to students using stems such as:
 - a. Let’s assume that the following is true.
 - b. We know that these things are true.
 - c. Before, we learned that the following is true.
2. Ask students to determine what they conclude based on the premises using prompts such as:
 - a. What do we know has to be true because the premises are true?
 - b. What do we know has to happen?
 - c. What can you predict has to occur?
3. Ask students to explain their reasoned inferences using prompts such as:
 - a. Explain why you are sure of that.
 - b. Explain the reasoning behind your conclusions.
 - c. Explain the logic underlying your conclusions.

Elaborative Interrogation

The teacher probes a student's answer by asking elaborative questions which prompt the student to reflect on the nature of and justifications for their response. The teacher might ask "Why do you believe that to be true?" in order to stimulate a student to provide evidence to support his or her conclusion. Based on the student's response, the teacher asks the student to generate an if-then statement. After an if-then statement has been generated, the teacher asks the student if he or she might think differently about the original conclusion.

Teacher Actions

- Asking students questions that require them to provide evidence to support their answers
- Asking students to generate if-then statements based on their answers
- Asking students to reconsider their original conclusions in light of the if-then statements

Desired Student Responses

- Providing evidence to support their answers
- Creating and defending if-then statements based on their answers
- Reconsidering their original conclusions

Extra Support

- Asking students to explain the reasoning behind specific parts of their responses to questions (rather than their whole response)

Extension

- Asking students to make generalizations about categories of people, places, things, or ideas that are inherent in their answers

Technology Tips

- Have students use screen capture software such as Jing (on computers) or ScreenChomp, Educreations, or TouchCast (on tablets) to create, capture, and present multimedia representations of evidence for their ideas.
- Have students use primary sources from the Smithsonian, the National Archives, or the Library of Congress to generate claims about historical events and then use presentation, interactive whiteboard, or screen capture software to create multimedia representations of those events and share them for online discussion over blogs, wikis, or websites.

Example Elaborative Interrogation Questions

Questions that require students to provide evidence to support their conclusions:

- Why do you believe that to be true?
- What makes you think that?
- How do you know that is correct?
- What evidence do you have for that conclusion?

Questions that help students make if-then generalizations about content:

- Based on what you've said, what would be an if-then statement that would be true?
- You've said that _____ is true. What else must be true then?
- If _____ happened, what else would have to happen?

Questions that require students to reconsider their original answer:

- Now that you've made an if-then statement, does the way you think about your answer change? How?
- What is another conclusion that you might have come to?
- Do you see things differently now? How?

Questioning Sequences

The teacher asks a sequence of detail questions, category questions, elaboration questions, and evidence questions to promote deep understanding and cognition. Detail questions should identify and build a base of factual information that students can subsequently use to answer deeper and more complex questions. Category questions should prompt students to generate lists of examples and identify important characteristics of a category. Elaboration questions should encourage students to use these lists to form claims and conclusions. Evidence questions should engage students in argumentation and evaluation as they find evidence to support their claims and revise their conclusions to exclude misconceptions or errors in reasoning.

Teacher Actions

- Asking students questions that require them to build a base of factual information
- Asking students questions that require them to generate lists of examples and identify important characteristics of a category
- Asking students questions that require them to form claims and conclusions
- Asking students questions that require them to engage in argumentation and evaluation based on evidence and to revise their conclusions to exclude misconceptions or errors
- Asking students questions in an order that builds upon previous answers to questions

Desired Student Responses

- Answering each question accurately and thoroughly based upon the type of question posed
- Using responses to previous questions to inform responses to the current question

Extra Support

- Explicitly stating how each question builds off the previous one and reminding students of previous answers to questions

Extension

- Asking students to list and answer the detail questions, category questions, and elaboration questions necessary to answer a given evidence question

Questioning Sequence Options

Question Phase	Options
<i>Detail Phase</i>	Ask questions about important details, such as people; organizations or groups; intellectual or artistic products; naturally occurring objects or animals; naturally occurring places; manmade objects; manmade places; events; natural phenomena; physical actions; mental actions; feelings, conditions, or states; and human constructs.
<i>Category Phase</i>	<ul style="list-style-type: none"> • Ask students to identify examples within a category. • Ask students to describe the general characteristics of a category. • Ask students to make comparisons within and across categories.
<i>Elaboration Phase</i>	<ul style="list-style-type: none"> • Ask students to explain reasons for characteristics. • Ask students to describe the effects of specific characteristics. • Ask students to predict what might occur under certain conditions.
<i>Evidence Phase</i>	<ul style="list-style-type: none"> • Ask students to identify sources that support their elaborations. • Ask students to explain the reasoning they used to construct their elaborations. • Ask students to qualify or restrict some of their conclusions. • Ask students to find errors in the reasoning used to construct their elaborations • Ask students to examine their elaborations from different perspectives.

Adapted from *Questioning Sequences in the Classroom* by Robert J. Marzano and Julia A. Simms (2014).

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

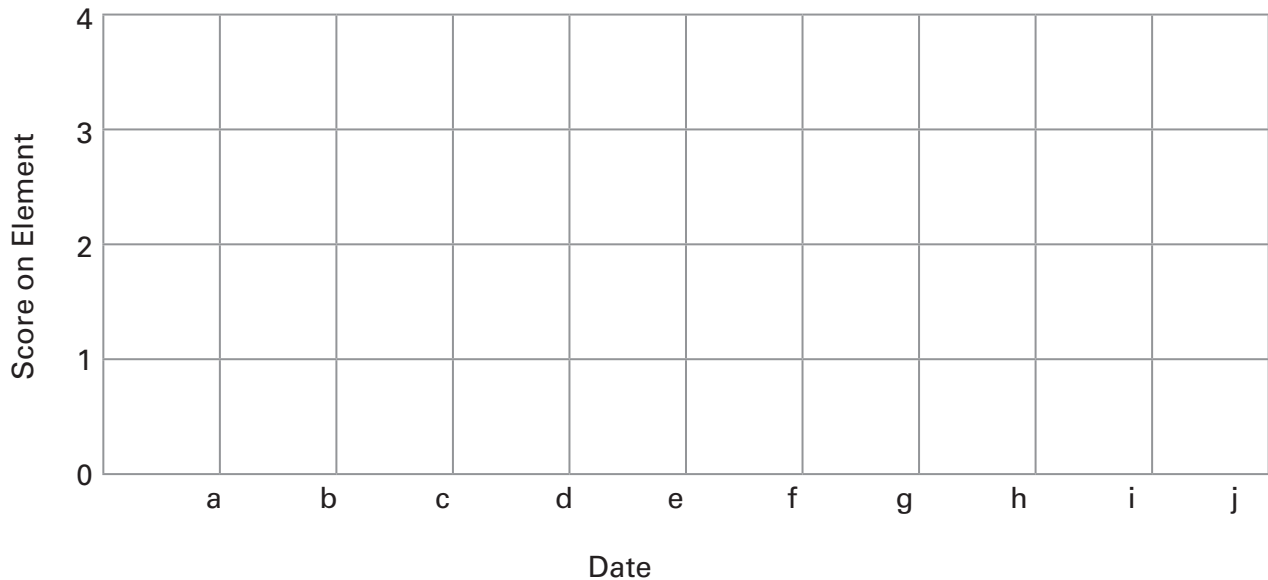
Use this worksheet to set a goal for your use of this element, make a plan for increasing your mastery, and chart your progress toward your goal.

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 elaborating on information.

Observation Date and Time: _____ Length of Observation: _____

Check Strategies You Intend to Use	Strategies	Description of What Was Observed
	General Inferential Questions	
	Elaborative Interrogation	
	Questioning Sequences	
	Other:	
	Other:	

Tracking Student Responses

A teacher or observer can use this worksheet to record student responses to questions to inform planning and implementation of strategies associated with elaborating on information. 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
Identifying factual information	
Categorizing information	
Justifying conclusions with evidence	
Drawing inferences or making predictions from evidence	
Defending inferences or predictions	
Adjusting inferences or predictions when presented with new evidence	
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 Elaborating on Information

1. My teacher helps me learn things that he or she didn't teach in class.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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2. When I learn something new, my teacher asks me to think about aspects of the topic that he or she did not talk about in class.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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3. My teacher asks me to explain my thinking.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
-------------------	----------	-------------------------------	-------	----------------

4. My teacher asks me questions that help me explain my thinking.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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5. My teacher asks me to solve problems that do not have obvious solutions.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
-------------------	----------	-------------------------------	-------	----------------

6. If I have to guess at the answer to a question, I make sure that I can explain my thinking.

Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Agree
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Teacher Survey for Elaborating on Information

1. I ask students questions that require them to build a base of factual information.

Often Sometimes Rarely Never I don't know

2. I ask students questions that require them to generate lists of examples and identify important characteristics of a category.

Often Sometimes Rarely Never I don't know

3. I ask students questions that require them to form claims and conclusions.

Often Sometimes Rarely Never I don't know

4. I ask students questions that require them to engage in argumentation and evaluation based on evidence and revise their conclusions to exclude misconceptions or errors.

Often Sometimes Rarely Never I don't know

5. I ask students questions in an order that builds upon previous answers to questions.

Often Sometimes Rarely Never I don't know

6. I asks students questions that require them to consider whether their answer is based on factual information, categorization, or inference.

Often Sometimes Rarely Never I don't know