

DIRECT INSTRUCTION LESSONS

Chunking Content

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.

CHUNKING CONTENT

Based on student needs, the teacher breaks the content into small chunks (that is, digestible bites) of information that can be easily processed by students. Research has shown that information must be presented in small pieces in order for students to hold it in working memory long enough to process it. The teacher should present chunks of information in a logical sequence, and he or she should determine the size of each chunk by how much students already know about the content. The more students know about the content, the larger the chunks. The less they know, the smaller the chunks.

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 can explain why the teacher is stopping at various points.
- Students appear to know what is expected of them when the teacher stops at strategic points.

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

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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 Chunking Content

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 chunk content, and I monitor the extent to which my actions affect students.	I chunk content, 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 introduces a new unit by giving a class-long lecture. She only pauses when a student raises his hand to ask a question and does not give the students time to process new or difficult knowledge.

Beginning (1): A teacher does not plan in advance where he will pause when reading a short story with his students. He decides to pause every few sentences, which disrupts the narrative and causes his students to lose track of the story's plot.

Developing (2): A teacher purposefully presents the introduction to a new unit in small chunks by breaking the important concepts of the unit into categories. However, she does not use any techniques to verify that the students are processing and understanding each chunk of information.

Applying (3): A teacher employs the chunk processing strategy to teach students new information. He observes and engages with the different groups in the room to make sure that every group member is participating and grasping the content. The teacher moves on to the next chunk when he is satisfied that the class understands what was just taught.

Innovating (4): A teacher observes her class after describing each step of a complex procedure and asking them to try it out. She looks for students who appear to be struggling with the steps so that she can modify her instructional approach. She pairs one struggling student with a student who appears to be successfully implementing the step and then asks the partner who is doing the step correctly to demonstrate and explain it to the other student.

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.

Presenting Content in Small Chunks

The teacher chunks content into small, digestible bites for students. If presenting new declarative knowledge, the chunks are comprised of concepts and details that logically go together. If presenting new procedural knowledge, the chunks are comprised of steps in a process that go together.

Teacher Actions

- Chunking content into small, digestible bites
- Presenting each chunk of content to students
- Following each chunk of content with an opportunity for students to process it

Desired Student Responses

- Explaining why the teacher chunks content into small bites
- Processing each chunk of new information after it is presented

Extra Support

- Giving a brief overview of each chunk or showing pictures representing the chunk before presenting it in more detail

Extension

- Asking students to select a chunk of information they would like to investigate in greater detail

Technology Tips

- Use presentation software (such as Prezi or Google Drive) or interactive whiteboard software to create interactive graphic organizers that highlight small chunks of information.
- Include digital representations of new content in lessons to help students explore the various attributes of the information. Use visual prompts such as drawings, diagrams, or photographs to help students identify similarities and differences between past knowledge and chunks of new information.
- Ask students to preview information prior to the start of a lesson by watching preselected video tutorials focusing on new content knowledge or, alternatively, having them use tablets or laptops to search the Internet for video tutorials or relevant websites.
- Have students use clickers with text input or mobile devices with polling software to sort small chunks of information into categories in interactive whiteboard software.

Tips for Chunking Content

- The brain’s working memory must process all information before it can be stored in long-term memory. Chunking content helps the brain process information more efficiently and gives learners the opportunity to integrate new content into their long-term memory or existing knowledge.
- Organize the content you want to address by creating topics or steps. If presenting the content visually, give each topic a heading to help students understand how to categorize the information in relation to the other topics.
- Move from broad or foundational concepts to more complex and detailed concepts. Design your chunks so that each chunk builds on the previous chunk.
- Visual representations of content assist learners in remembering the content. Consider how graphs, charts, and images can be incorporated to clarify the information being presented.
- Bullet points are a simple way to chunk content, as long as too many aren’t presented at once (try limiting yourself to five sentence-length bullets at a time) and as long as they all fall under the same topic.
- Encourage students to take notes and summarize the content as it is being taught or presented. If the students have questions while watching a video or reading a text, suggest that they write them down so they can be addressed during a stopping point.
- Give students the opportunity to ask questions about each chunk. Use different techniques to gauge how well students understand the content, such as taking an informal “Thumbs Up, Thumbs Down” poll to see how comfortable students feel with what was just taught or, alternatively, asking students to explain what they just learned to their neighbor to see how their understanding compares.

Using Preassessment Data to Vary the Size of Each Chunk

If students scored well in a specific area on a preassessment, the teacher presents that information as part of a larger chunk. When presenting information about which students displayed misconceptions or little prior knowledge on the preassessment, the teacher can use smaller chunks.

Teacher Actions

- Administering a preassessment featuring upcoming content to students
- Presenting content that students scored well on in larger chunks
- Presenting content that students scored poorly on in smaller chunks

Desired Student Responses

- Explaining why the teacher presents larger or smaller chunks of content
- Alerting the teacher if the size of a particular chunk is too large (overwhelming) or too small (boring)

Extra Support

- Using stories or video clips to build students' background knowledge for information about which they displayed misconceptions or little prior knowledge on the preassessment

Extension

- Asking students to select a topic from the preassessment that they would like to investigate in greater detail

Technology Tips

- Use polling technology to efficiently preassess student understanding of new knowledge by asking students to respond to questions using clickers or polling software on their mobile devices.

Sample Preassessment Questions

Preassessment questions similar to the following can be used to gauge students' familiarity with and interest in new content. Create a survey that students can use to respond to the questions on a rating scale. Student responses can be used to inform your approach to the chunking and presentation of new content.

- In the past, were you ever taught about [*learning topic*]?
- If you have learned about [*learning topic*] before, do you remember what was taught to you?
- If you have learned about [*learning topic*] before, do you have questions or are there parts you don't understand?
- Are you interested in learning more about [*learning topic*]?

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Use the following preassessment question models to ask students to demonstrate their knowledge in different ways. Giving students a variety of opportunities to demonstrate their expertise will help you assess their depth of knowledge and can reveal inconsistencies in their understanding.

- Describe what the term [*vocabulary term*] means and how it relates to the topic of [*learning topic*].
- Describe how [*person's name*] was involved in the [*event or time period*]
- Explain what happens when [*situation or occurrence*].
- Explain why [*situation or event*] occurs.
- Explain how to [*process*].
- Demonstrate how to [*process*].
- Give an example of [*category*].

Chunk Processing

The teacher has students work together to process chunks of information. In groups of three, students decide who will be member A, member B, and member C. The teacher presents the first chunk of information, and member A summarizes it. Members B and C add to what A has already said, and each group identifies elements of the chunk they are still confused about. The teacher takes questions from the whole class to clarify these confusions and then asks each group to predict what the next chunk will be about. The teacher presents the next chunk, and groups repeat the process, except that member B summarizes and members A and C add information. After the teacher presents the third chunk, groups repeat the process again, with member C summarizing, and members A and B adding information.

Teacher Actions

- Grouping students in threes and assigning a letter to each group member: A, B, and C
- Presenting a chunk of information and asking student A to summarize the information and students B and C to add to A's summary
- Answering any questions from groups and asking each group to predict what the next chunk will be about
- Rotating the role of summarizer after each chunk

Desired Student Responses

- Following the procedure for chunk processing
- Accurately summarizing new information
- Asking pertinent questions about new information
- Describing their predictions about new information

Extra Support

- Using a storyboard to illustrate a procedure for summarizing information before asking students to engage in chunk processing

Extension

- Asking students to identify how each chunk of information presented relates to the main ideas of a unit or learning goal

Supporting Students in Summarizing

Before students can participate in the chunk processing activity, it is important that they understand how and are prepared to summarize new content. Use these techniques to introduce students to summarizing.

- Practice basic summarizing techniques by asking students to describe the plot of a familiar movie or story in one to two sentences. Remind students that it is not necessary to retell the whole plot, they should simply try to tell listeners the most important information in their

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own words. For extra support, ask students to list the who, what, where, when, and why of the plot before giving their summary.

- Ask students to use a simple graphic organizer to find the main idea and key details from a short presentation or text. Using an organizer can help students understand what kind of information is important to highlight in a summary. For extra support, provide students with the main idea before the start of the lesson and have them fill in the key details.
- When students begin summarizing content, ask them to think about what they would tell someone who missed class to help him or her understand the important ideas from a lesson. Have them practice what they would say with a partner. To encourage students to condense their summaries to only the most critical details, have partners time each other to see if they can summarize ideas in thirty seconds or less.
- When students are participating in the chunk processing activity, instruct them to write down the main idea of each chunk as sentences or phrases in their notes. Encourage them to write down at least three important details that they can use to summarize the main idea with their groups. Show students how supplementary information, such as headings, images, and graphs, in visual presentations of new content can help them decipher what the main idea and key details are.
- Additionally, ask students to write down important vocabulary from the chunk, especially vocabulary that might be new to them, as well as the vocabulary's definition, if provided. Instruct students to mention this vocabulary in their groups if it seems essential to understanding the main idea.

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

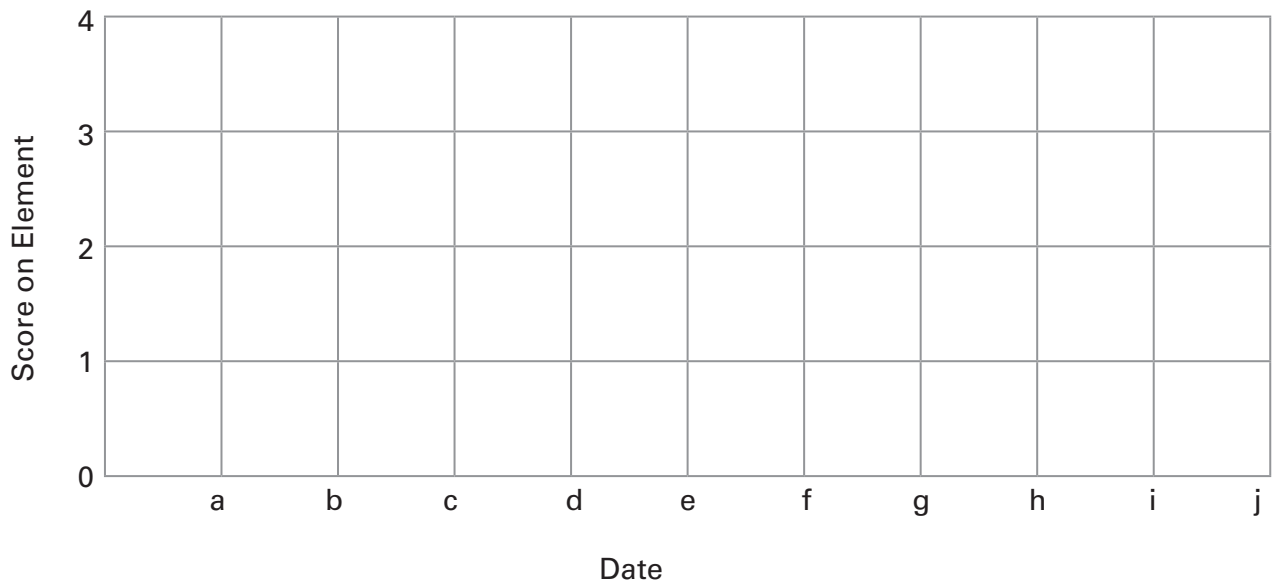
Use this worksheet to set a goal for your use of this element, make a plan for increasing your mastery, and chart your progress toward your goal.

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 chunking content.

Observation Date and Time: _____ Length of Observation: _____

Check Strategies You Intend to Use	Strategies	Description of What Was Observed
	Presenting Content in Small Chunks	
	Using Preassessment Data to Vary the Size of Each Chunk	
	Chunk Processing	
	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 chunking content. 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
Answering questions about what was just taught	
Summarizing content in a chunk	
Performing steps in a new procedure	
Demonstrating confidence when sharing new information with peers	
Pointing out when new information is overwhelming	
Pointing out when new information is boring or covers something they already know	
Following chunk processing procedures	
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 Chunking Content

1. My teacher teaches me new information a little bit at a time.

Strongly Disagree Disagree Neither Agree
Nor Disagree Agree Strongly Agree

2. While teaching, my teacher stops and asks me to talk about what he or she just said.

Strongly Disagree Disagree Neither Agree
Nor Disagree Agree Strongly Agree

3. My teacher talks for different amounts of time, depending on how much we already know about what he or she is saying.

Strongly Disagree Disagree Neither Agree
Nor Disagree Agree Strongly Agree

4. My teacher often stops in the middle of a video, story, or section of text to let us talk about it.

Strongly Disagree Disagree Neither Agree
Nor Disagree Agree Strongly Agree

5. My teacher often checks in with me to see if I understand what he or she is saying.

Strongly Disagree Disagree Neither Agree
Nor Disagree Agree Strongly Agree

6. I know what to do when my teacher asks me to talk to a partner or small group about what I have just learned.

Strongly Disagree Disagree Neither Agree
Nor Disagree Agree Strongly Agree

Teacher Survey for Chunking Content

1. I pause strategically when presenting new content verbally.

Often Sometimes Rarely Never I don't know

2. I pause strategically when playing a video or reading a text with my class.

Often Sometimes Rarely Never I don't know

3. I plan out how I will chunk content before presenting a lesson.

Often Sometimes Rarely Never I don't know

4. I give students preassessments before presenting new content.

Often Sometimes Rarely Never I don't know

5. After teaching new information, I ask students questions to check their comprehension.

Often Sometimes Rarely Never I don't know

6. After teaching new information, I ask students to summarize what they have learned.

Often Sometimes Rarely Never I don't know

7. I incorporate visual elements into my presentations of new content.

Often Sometimes Rarely Never I don't know