

**DIRECT INSTRUCTION LESSONS**

# Recording and Representing 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.

# RECORDING AND REPRESENTING CONTENT

The teacher engages students in activities that help them record their understanding of new content in linguistic ways and represent the content in nonlinguistic ways. Research has shown that representing information linguistically (summaries and notes) and representing information nonlinguistically (models, pictures, mental images) are both associated with gains in student achievement. When information is both linguistic and nonlinguistic, students process information more thoroughly and deeply.

## 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' summaries and notes include critical content.
- Students' nonlinguistic representations include critical content.
- When asked, students can explain the main points of the lesson.

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) level, he or she implements strategies for the element correctly and completely, but does not monitor their effects. At the Applying (3) level, the 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 Recording and Representing 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 have students record and represent content, and I monitor the extent to which my actions affect students' performance.	I have students record and represent 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 expects that her students will take notes if they need to, but she does not provide them with any kind of strategies to do so.

**Beginning (1):** A teacher asks his students to use combination notes to record critical information from a lesson. However, students are unfamiliar with the summarizing part of the organizer, and because the teacher does not model or explain techniques for summarizing, many leave that section of their notes blank.

**Developing (2):** A teacher teaches her class a mnemonic for remembering different units of measurement. She uses the mnemonic effectively throughout the unit, but she doesn't try to determine if it enhanced their recall of the content.

**Applying (3):** A teacher has his class use academic notebooks to record information, ideas, and reflections. He encourages students to write notes and record their ideas as diagrams or drawings. At the end of every unit, the teacher asks students to go back through their notes to amend any misunderstandings and respond to hypotheses made earlier in the unit. He then collects the academic notebooks and reviews them to see how the students' entries compare to their assessment answers and scores.

**Innovating (4):** A teacher asks her class to use graphic organizers to record and represent critical content. First, she provides them with several templates they can use to record their notes and explains each purpose. She then puts students into small groups to complete their graphic organizers. As they complete their graphic organizers, she walks around the room, checking in with specific students whom she knows have been having difficulty with the content. At the end of the lesson, she asks each group to explain why they chose their graphic organizer and what it helped them understand about the content.

# 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.

## Informal Outline

In an informal outline, students use indentation to indicate the relative importance of ideas. They write big ideas at the left side of the paper, and indent and list details under the big idea to which they pertain. Students can also use numbering, bullets, or Roman numerals to organize information and display its relative importance. The following example shows an informal outline for information about different types of memory.

### *Working Memory*

- What we are paying attention to right now*
- May or may not be remembered later*
- Can only handle a small amount of information at a time*

### *Short-Term Memory*

- Where we hold recent events and relatively new information*
- Larger storage space than the working memory*
- Not everything in the short-term memory will be permanently retained*

### *Long-Term Memory*

- The largest part of the memory*
- Where all of our childhood memories are stored*
- Information in the long-term memory is always remembered*

## Teacher Actions

- Helping students identify big ideas and details about a topic
- Helping students arrange big ideas and details about a topic in an informal outline format

## Desired Student Responses

- Identifying big ideas and details about a topic
- Arranging big ideas and details about a topic in an informal outline format

## Extra Support

- Asking students to sketch small pictures or symbols next to each big idea in their informal outline

## Extension

- Asking students to select a big idea on their outline that they would like to investigate further

## Technology Tips

- Use audio recording software (such as Audacity) to capture oral student outlines. Students may also use speech-to-text apps (such as Dragon Dictation) to convert their oral outlines into text outlines.
- Have students use online word processing software such as Google Drive and note-taking apps like Evernote to organize and record new knowledge in informal outlines.



## Recording and Representing Content

- Ask students to use mind-mapping apps like Mindjet to create diagrams connecting main ideas with supporting details. Students can then modify or elaborate on these informal outlines, saving multiple versions to record the progression of their learning.
- Have students use online publishing technology to collaborate on informal outlines. For example, groups of students might use Wikispaces to create and post informal outlines detailing main ideas and supporting details. Students can also publish on classmates' wikis and create hyperlinks to form a network of student work.

# Informal Outline

Name: \_\_\_\_\_

Topic or Title: \_\_\_\_\_

1. Main idea: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

2. Main idea: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

3. Main idea: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

• Detail: \_\_\_\_\_

\_\_\_\_\_

## Summarizing

The teacher asks students to summarize content. Summarizing requires that students record the critical content from a text or lesson. Summarization techniques often require multiple complex cognitive processes and should be directly taught and modeled for students. Below is a scale that describes different phases of summarization mastery that teachers can use to measure students' ability to summarize content.

<b>Score 4.0</b>	Students summarize critical information in their own words and generate their own conclusions about the information.
<b>Score 3.0</b>	Students summarize critical information in their own words and demonstrate a clear understanding of the information.
<b>Score 2.0</b>	When responding to prompts from the teacher, students are able to identify critical information in a text or lesson.
<b>Score 1.0</b>	When responding to prompts from the teacher, students struggle to identify critical content or information.

### Teacher Actions

- Helping students identify critical information in a text or lesson
- Modeling what information to include in a summary
- Leading students in summarization activities

### Desired Student Responses

- Identifying critical information to include in a summary
- Providing summaries based on content and texts
- Including only pertinent details in their summary

### Extra Support

- Using graphic organizers or prompts to guide students' summaries

### Extension

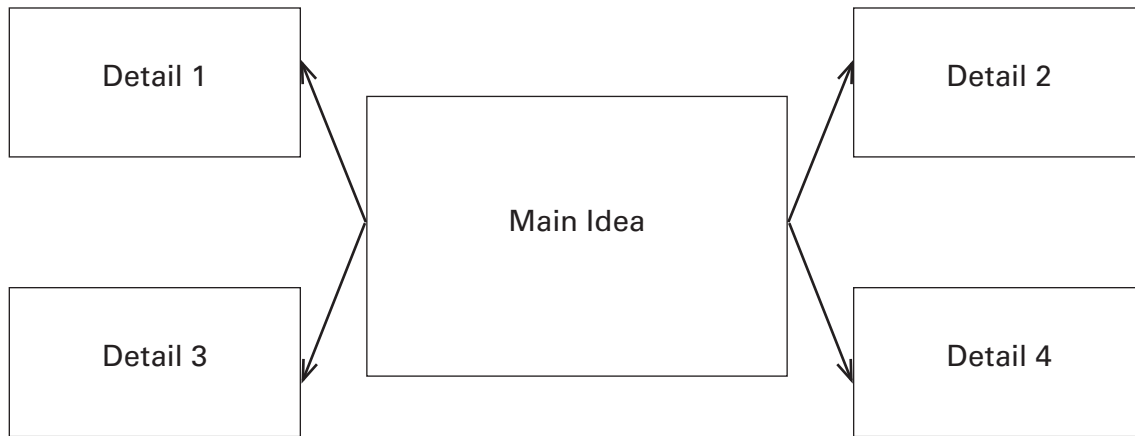
- Asking students to draw conclusions and make generalizations about the content in their summaries

### Summarization Activities

- Use summary frames to structure students' early attempts at summarization. A summary frame is a series of questions that focus on important elements of the content. Students answer the questions and then use their responses to generate a summary. For example, in a summary frame for a short story, the teacher might create a series of questions that ask students to list the setting, characters, main conflict, and resolution of the story.
- Show students how supplementary information, such as headings, images, and graphs, in visual presentations of content and texts can help them decipher what the main idea and key details are.

## Recording and Representing Content





- 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 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, like the following, to find the main idea and key details from a short presentation or text. Using this kind of 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 had missed class to help them 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.

## Pictorial Notes and Pictographs

The teacher asks students to use pictorial notes and pictographs to illustrate new content. Pictorial notes may serve as an accompaniment to written notes or, in some cases, as the primary note-taking form. Pictographs, like pictorial notes, may be accompanied by text for clarification. Pictographs are often used to represent data in mathematical charts. In place of numbers, images are drawn to indicate how much of a certain item each category has. Additionally, pictographs can be simple drawings that express words or phrases. Following is an example of a pictograph that compares the number of apples harvested from three orchards. Students could be asked to draw this kind of chart before completing a word problem that uses these data.

Left Fork Orchard	
Smoky Hill Orchard	
Goose Creek Orchard	
 = 100 apples	

Pictographs can use any kind of image for any amount, as long as there is a clear key that defines the symbols for the students and teacher.

### Teacher Actions

- Helping students identify information to include in pictorial notes
- Providing prompts for student-generated pictorial notes and pictographs
- Providing students with data to compare in pictographs

### Desired Student Responses

- Using pictorial notes to record processes, cycles, and general notes
- Using pictographs to compare data
- Using pictographs to represent words and phrases

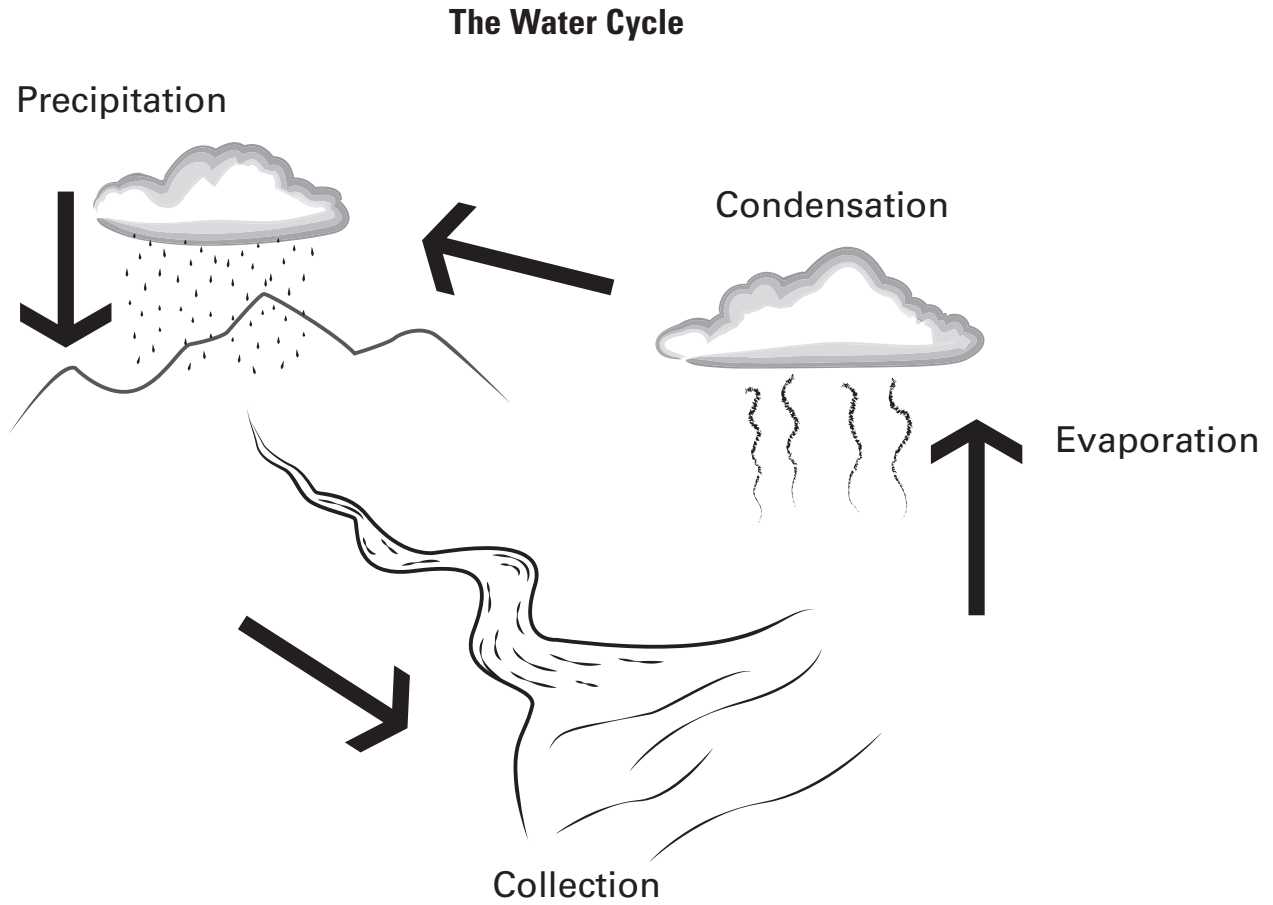
### Extra Support

- Posting examples of various kinds of pictorial notes and pictographs students can use to record content

### Extension

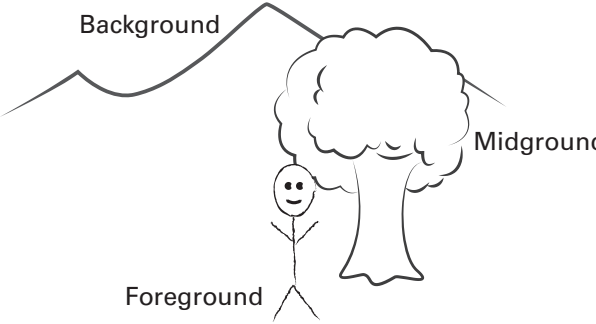
- Asking students to draw conclusions and make generalizations about the content in their pictographs and pictorial notes

**Pictorial Notes Example**



## Combination Notes, Pictures, and Summary

Students record written notes about the content in the left-hand column of a chart, pictographs or pictorial representations of the content in the right-hand column, and a summary of the content in the lower section of the chart.

Notes	Picture
<p>Foreground</p> <ul style="list-style-type: none"> <li>Closest to the viewer</li> <li>Largest scale</li> </ul> <p>Midground</p> <ul style="list-style-type: none"> <li>Space between foreground and background</li> <li>Medium scale</li> </ul> <p>Background</p> <ul style="list-style-type: none"> <li>Farthest from the viewer</li> <li>Smallest scale</li> </ul>	
<p>Summary: Most paintings or pictures have a foreground, midground, and background. The foreground contains the objects which appear the closest because of their large scale, the midground is the space between the background and foreground, and the background contains objects that appear farthest from the viewer because of their small scale.</p>	

### Teacher Actions

- Helping students identify information about content to include in notes
- Helping students create nonlinguistic representations for information in their notes
- Helping students summarize the content in their notes

### Desired Student Responses

- Identifying important information about content to include in their notes
- Using nonlinguistic representations in their notes
- Summarizing the content in their notes

### Extra Support

- Posting examples of various kinds of pictures and diagrams that students can use in the “pictures” section of their notes

### Extension

- Asking students to draw conclusions and make generalizations about the content in their summaries

# Combination Notes Organizer

Name: \_\_\_\_\_

Subject: \_\_\_\_\_

Notes	Picture
<p><i>Summary:</i></p>	



## **Graphic Organizers**

Students record their knowledge using graphic organizers that correspond to specific patterns commonly found in information. Common text structures include sequence, description, comparison, causation, and problem/solution. These nonlinguistic representations can be combined with other note-taking strategies (like combination notes, pictures, and summary).

### **Teacher Actions**

- Explaining different kinds of graphic organizers and their purposes to students
- Helping students use graphic organizers to express information

### **Desired Student Responses**

- Explaining the relationships shown by different graphic organizers
- Using graphic organizers to accurately represent information

### **Extra Support**

- Posting pictures of specific graphic organizers and the informational patterns they correspond to in the classroom for students to refer to

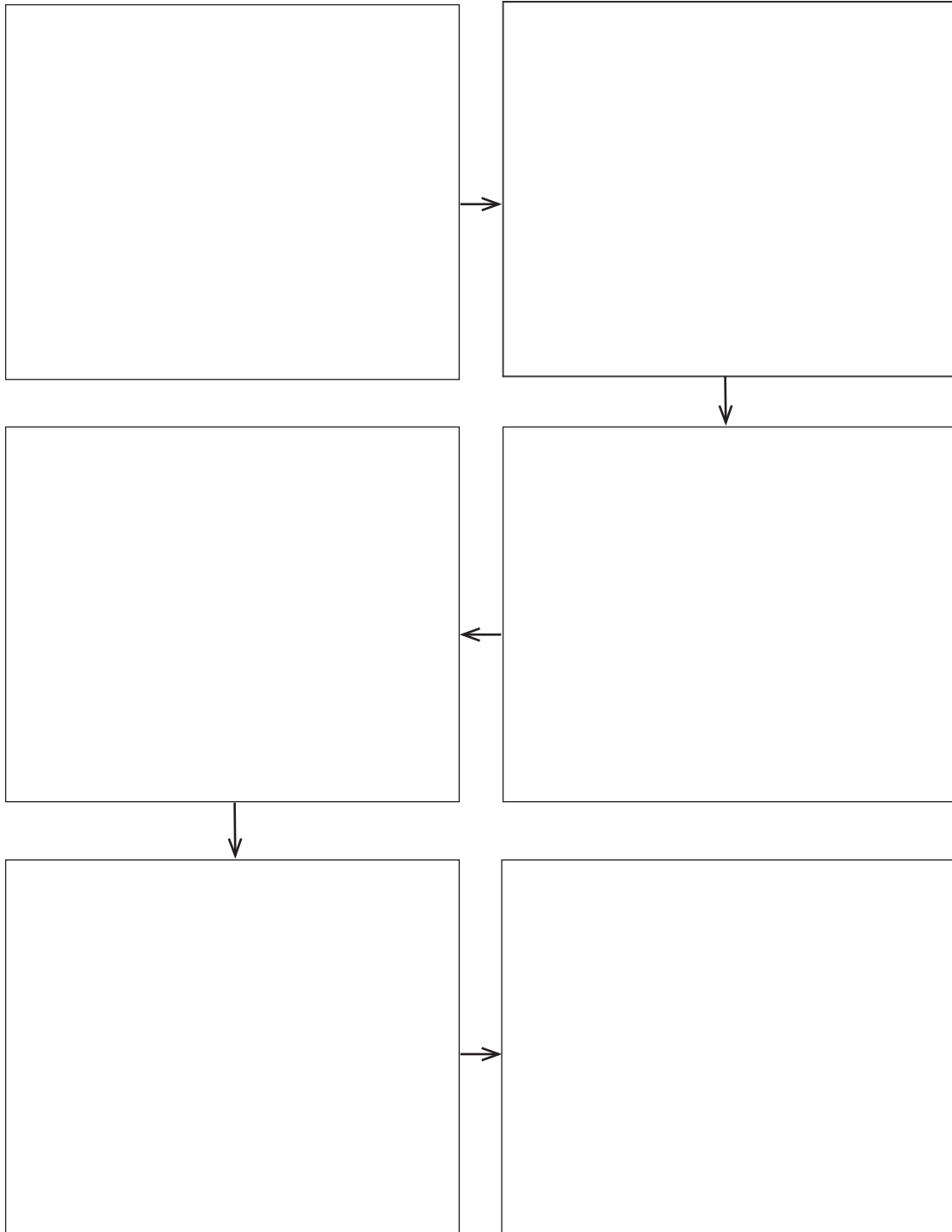
### **Extension**

- Asking students to create their own graphic organizers for specific informational patterns

# Sequence Graphic Organizer

Name: \_\_\_\_\_

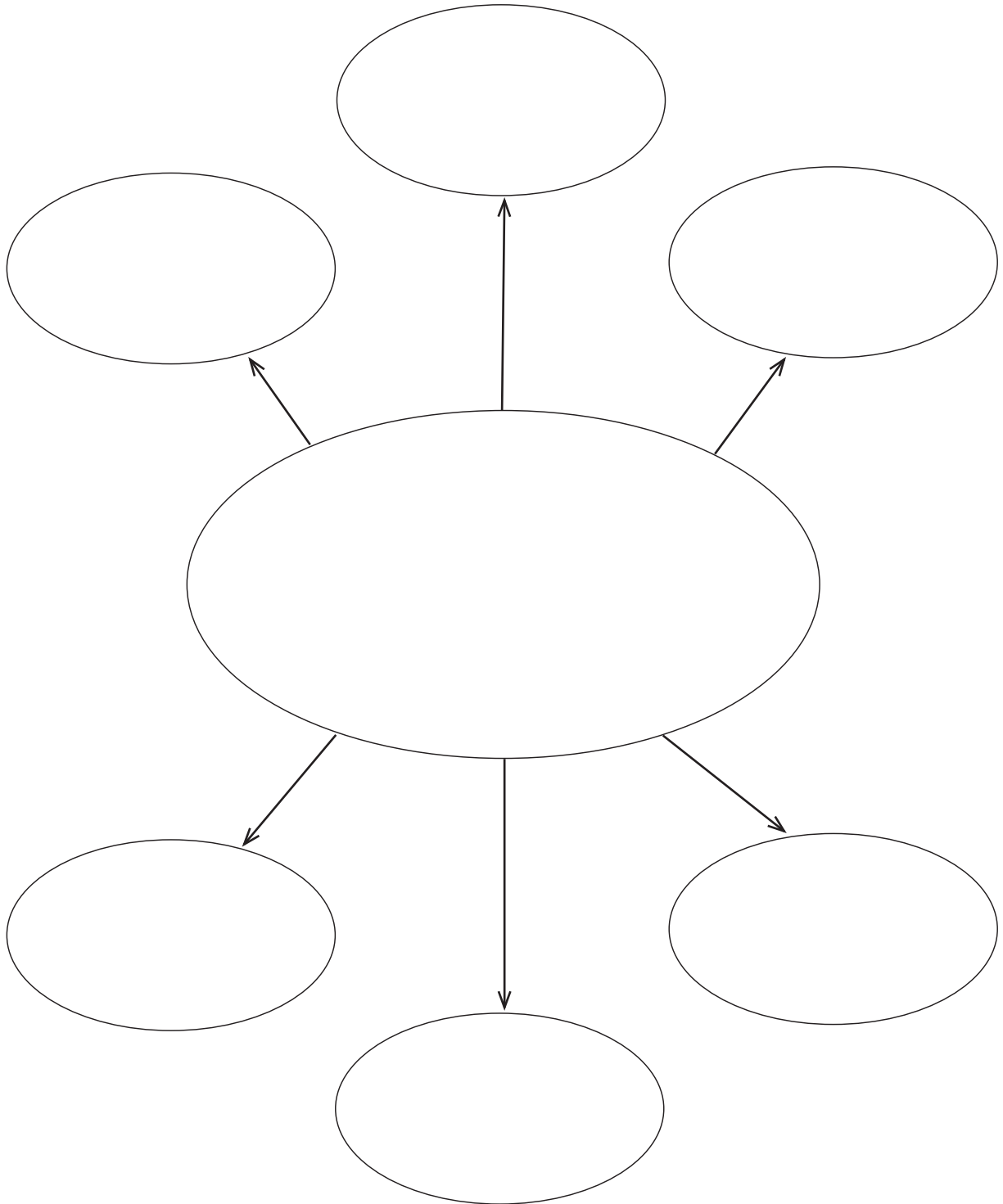
Topic: \_\_\_\_\_



## Description Graphic Organizer

Name: \_\_\_\_\_

Topic: \_\_\_\_\_



## Comparison Graphic Organizer

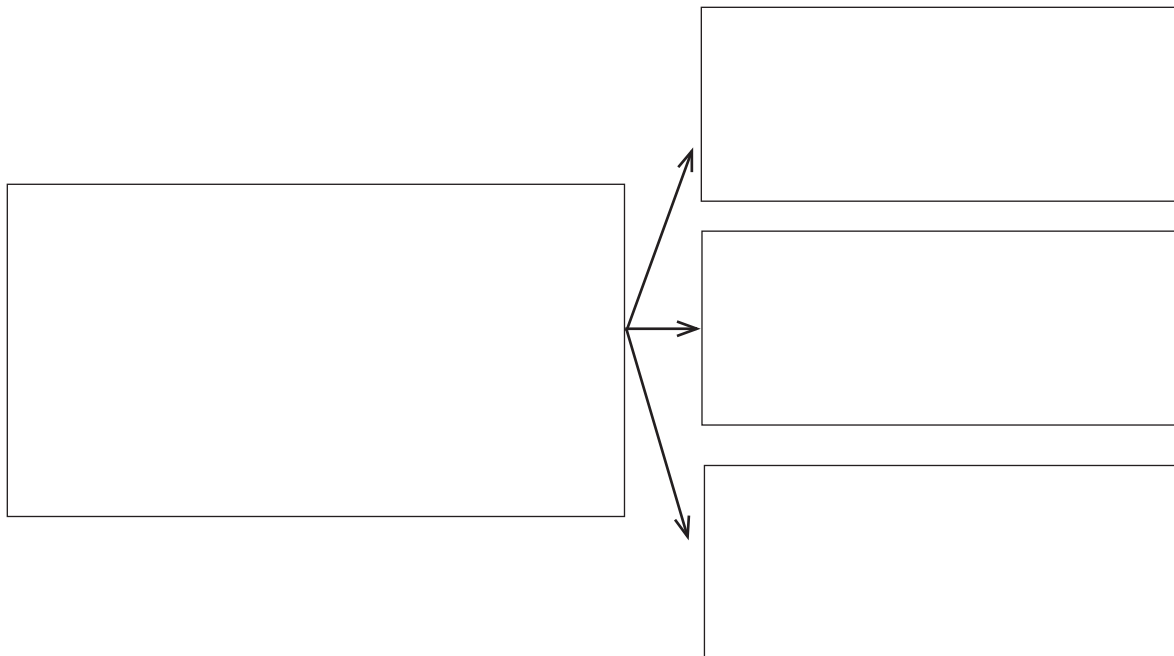
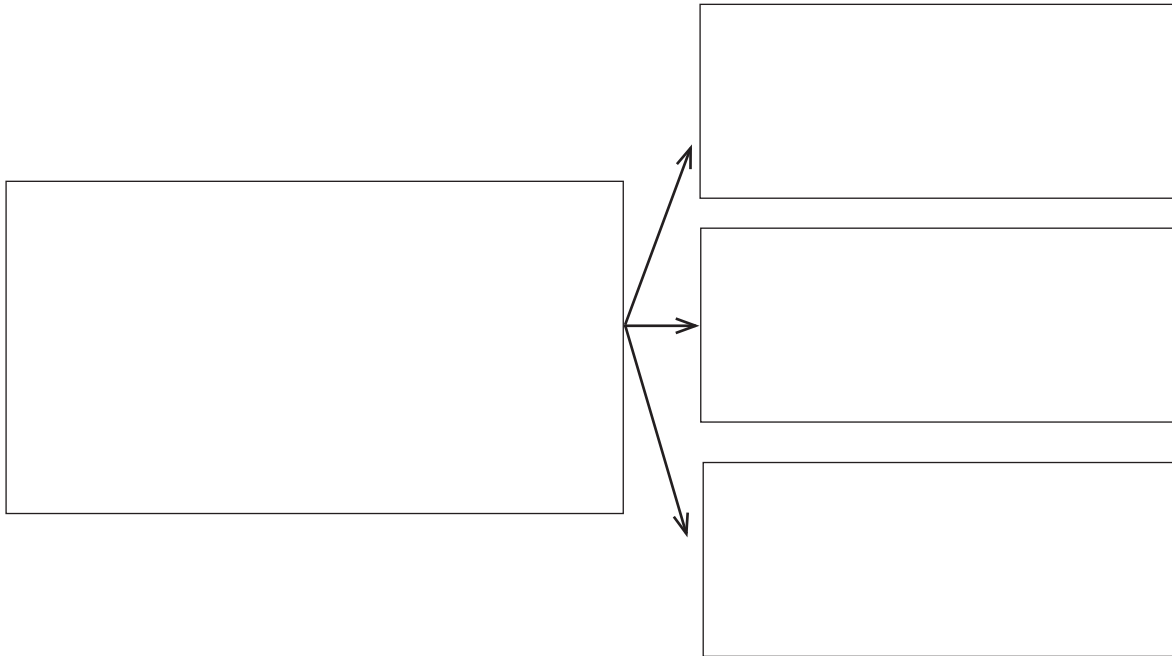
Name: \_\_\_\_\_

Topic: \_\_\_\_\_


# Causation Graphic Organizer

Name: \_\_\_\_\_

Topic: \_\_\_\_\_



## Problem/Solution Graphic Organizer

Name: \_\_\_\_\_

Topic: \_\_\_\_\_

Problem:



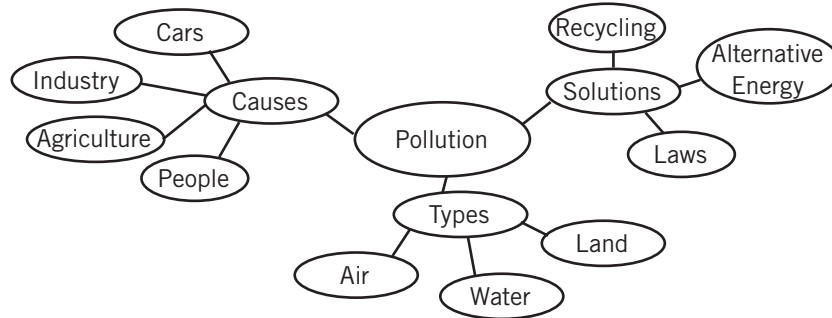
1.	2.	3.



Solution:

## Free-Flowing Web

Students place big ideas in central circles and then use lines to connect big ideas to smaller circles that contain important details about each big idea. Unlike a simple description graphic organizer, a free-flowing web should connect multiple sub-topics by showing how they relate to a central topic. A free-flowing web works well for organizing students' knowledge about an advanced concept or process. Teachers can ask students to complete a free-flowing web individually, but it can also serve as a group or whole-class review activity. The following example shows a free-flowing web for the topic of pollution.



### Teacher Actions

- Helping students identify the relationships between big ideas and details for a topic
- Helping students show relationships between big ideas and details for a topic in a free-flowing web

### Desired Student Responses

- Identifying relationships between big ideas and details for a topic
- Using free-flowing webs to show relationships between big ideas and details for a topic

### Extra Support

- Having students use different colors to show the topic, main ideas, and details on their free-flowing webs

### Extension

- Asking students to include different perspectives about a topic in their free-flowing webs

### Example Uses of a Free-Flowing Web

- To compare the causes, effects, and possible solutions for a major global, political, or cultural issue
- To delineate different opinions in an argument or perspectives on a topic
- To diagram the steps, uses, purposes, and origins of a procedure
- To map the setting, players, and effects of an important historical event
- To describe the major story elements (such as plot, characters, setting) of a book or short text
- To compare the different sub-categories within a category

## **Academic Notebooks**

Students organize compilations of their notes to provide a permanent record of their thinking and make corrections to their thinking as they review previous entries. Students should date their entries and record reactions, questions, answers, and assessments of their progress. Students can also make entries reflecting their conclusions and insights.

### **Teacher Actions**

- Creating a system to keep track of students' academic notebooks
- Helping students organize their notes to create a permanent record of their learning

### **Desired Student Responses**

- Bringing their academic notebooks to class or using the teacher's organizational system to keep track of their notebooks
- Organizing notes by date to keep track of learning
- Accurately recording information in their academic notebooks

### **Extra Support**

- Using loose-leaf notebooks as academic notebooks, and having students make entries on a different page each day so they can take pages out and rearrange them as necessary

### **Extension**

- Asking students to select topics from their academic notebooks that they would like to investigate in greater depth

### **Technology Tips**

- Have students record their notes, reactions, and questions in a variety of media formats. For example, students can use audio recording software such as Audacity, text-to-speech apps such as Dragon Dictation, or video recording software on tablets, laptops, or smartphones to archive new knowledge in audio journals or video logs.



## Academic Notebook Entry

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Subject: \_\_\_\_\_ Topic: \_\_\_\_\_

Details about what I learned:

1. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
2. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
3. \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Summary of what I learned:

Questions I have about what I learned:

## **Dramatic Enactments**

For this strategy, students role-play characters or act out scenes, processes, or events. They can also use their bodies to create symbols for concepts such as radius, diameter, and circumference. While dramatic enactments can be highly engaging for students, they can be superficial if handled incorrectly. Teachers must budget time in class for students to explain the explicit connections between their enactments and the content they represent.

### **Teacher Actions**

- Asking students to act out scenes, processes, or events being studied
- Asking students to use their bodies to express concepts being studied

### **Desired Student Responses**

- Acting out scenes, processes, or events being studied
- Using their bodies to accurately express concepts being studied

### **Extra Support**

- Asking volunteers to participate in role plays or demonstrate body representations for the whole class before asking all students to participate

### **Extension**

- Asking students to select important scenes, processes, events, or concepts from the content to be the subject of dramatic enactments and justify their selections

### **Technology Tips**

- Have students use digital video tools (such as cameras or smartphones) to record, edit, and share dramatic representations of new content knowledge.

### **Qualities of Effective Dramatic Enactments**

- Students must have a strong understanding of the content before performing a dramatic enactment. While students can engage in research and more extensive investigation of a topic before performing a dramatic enactment, if this is a new strategy in the classroom it may be beneficial to directly teach key information. Creating dramatic enactments can also help clarify and distinguish content for students, but only if they have the requisite background knowledge.
- Dramatic enactments should engage students' creativity and critical thinking skills. Dramatic enactments often ask students to reimagine content as something else or create a metaphor between content and movement. This concept might be challenging for students at first, so provide several examples for students to watch or help them map out a plan for their enactment before practicing it. If possible, save recordings of previous years' enactments or find a similar activity online that students can reference while working on their project.

## Recording and Representing Content

- Students should be able to describe the choices they made in their dramatic enactments. Teachers can ask students to write a short summary of why they chose to structure their enactment the way they did or have students explain their reasoning verbally for the class.
- Dramatic enactments should encourage students to explore different perspectives, cultures, time periods, and characters. Dramatic enactments can be particularly useful to help students put themselves in someone else's shoes. Teachers can have students create short dramatic enactments that explore unique perspectives and then ask students how the dramatic enactment helped them better understand that perspective.
- Dramatic enactments should not focus on students' acting or performance abilities. Not all students will feel comfortable with the idea of performing in front of their peers. Teachers should encourage students to present clearly and confidently, but remind students that the enactment is primarily about engaging with the content and learning from their own as well as their classmates' performances.

## Mnemonic Devices

A teacher uses mnemonic devices to help students remember, record, and represent critical content. Mnemonic devices often link content to symbols, imagery, and patterns of sound to strengthen the memory of the user. A teacher can lead students in the use of mnemonic devices to encourage their continued engagement with content.

### Teacher Actions

- Creating a collection of facts and concepts that need to be memorized
- Demonstrating different mnemonic devices students can use
- Asking students to recall information using a specific mnemonic device

### Desired Student Responses

- Identifying facts that are important enough to be memorized
- Associating information with different mnemonic devices
- Successfully recalling information using mnemonic devices

### Extra Support

- Working as a class to develop and practice a mnemonic

### Extension

- Asking students to use a decision-making matrix to decide which information is important enough to be memorized

### Examples Mnemonic Devices

**Acronym mnemonics:** Probably the most common acronym mnemonic is ROY G. BIV, which represents the spectrum of colors found in the rainbow (red, orange, yellow, green, blue, indigo, violet). Students can create their own acronym mnemonic by using the first letters from a series of words to create a new word. Acronym mnemonics can be helpful when trying to remember items that belong to a category or steps in a process or procedure. Another common acronym mnemonic is PEMDAS (parentheses, exponents, multiply, divide, add, subtract) which represents the order of operations for equations. If the acronym by itself doesn't seem memorable enough, try using the first letter of each word to create a short expression. For instance, some teachers take the mnemonic PEMDAS one step further by using the expression "Please Excuse My Dear Aunt Sally" to represent the steps in the order of operations.

**Music mnemonic:** Music has long been a useful mnemonic device; many students learn the alphabet or the quadratic equation using a melody. Advertisers also frequently take advantage of this mnemonic by setting their slogans to catchy melodies. For best use of this strategy, set a list of steps or facts to a song or melody that most students will be familiar with. Students can create their own music mnemonics by using the melody of a nursery rhyme, pop song, or common folk song to help them remember facts, dates, processes, and other lists of information. Extend this activity by having students create a short music video to accompany their music mnemonic.

## Recording and Representing Content

**Image mnemonic:** Students draw an image to help them remember content. Unlike pictorial notes, an image mnemonic may not represent a fact or concept directly but may instead capitalize on the sound or other qualities of the concept to create a memorable, often silly, image. For example, in order to remember that pi is the ratio of the circle's circumference to its diameter, a student might draw a whole pie balancing on top of half a pie. In this kind of mnemonic, while it is important to create a memorable image, it is equally important that the student is able to link the image to the fact or concept to be remembered, so it is essential that the connection between the image and content is not too tenuous.

**Spelling mnemonic:** One example of a spelling mnemonic, "you always want two desserts, but you only want one desert," is used to help students remember that *dessert* has two of the letter "s" and *desert* only has one. Students can create their own spelling mnemonics to help them remember the spelling of words that they often forget. This activity works well for distinguishing between two words that are very similar in spelling or sound. Teachers and students can use images, pithy phrases, or other devices to design a spelling mnemonic.

## Rhyming Pegwords

Students use this strategy to remember a list of facts or information. The method uses a set of concrete images that rhyme with the numbers one through ten, such as the following.

One is a bun.

Two is a shoe.

Three is a tree.

Four is a door.

Five is a hive.

Six is a stack of sticks.

Seven is heaven.

Eight is a gate.

Nine is a line.

Ten is a hen.

To remember a fact or piece of information, a student associates it with one of the concrete images. For example, a student might want to remember the following list of information about ancient Egyptian civilization:

1. Egyptian civilization developed along the Nile River in Africa.
2. The Egyptians used a system of writing called hieroglyphics.
3. The Egyptians built the pyramids as burial places for their pharaohs.

To remember these facts, the student might connect the first item to the image for the number one, a bun. He or she might picture a hot dog bun with the Nile River flowing through the center of it. The second item would be connected to the image for the number two, a shoe—perhaps a shoe with hieroglyphics written on the side of it. The third item in the list would be connected to the image of a tree, for the number three. The student might imagine a tree whose leaves and branches had been trimmed to create a pyramid shape. These images help the student ensure that he or she has remembered all the items in the list. This strategy is especially helpful with long lists of facts or lists that must be recalled in a certain order.

### Teacher Actions

- Creating a list of facts that need to be memorized
- Helping students attach information to each pegword image

### Desired Student Responses

- Identifying facts that are important enough to be memorized
- Associating information with different pegwords and images
- Successfully recalling information using pegwords and images

### Extra Support

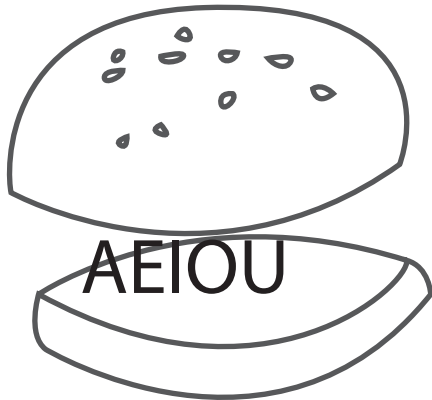
- Asking students to draw pictures of the images they use to associate information with each pegword

### Extension

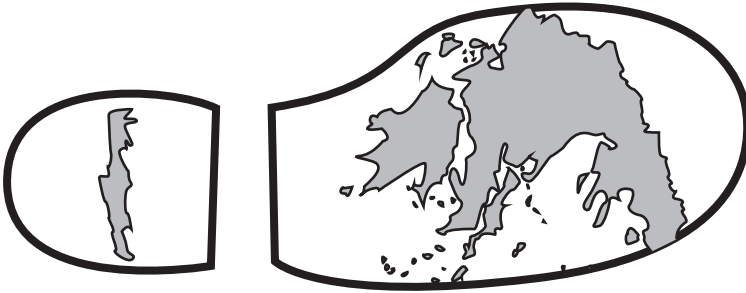
- Asking students to use a decision-making matrix to decide which information is important enough to be memorized

**Rhyming Pegwords Example**

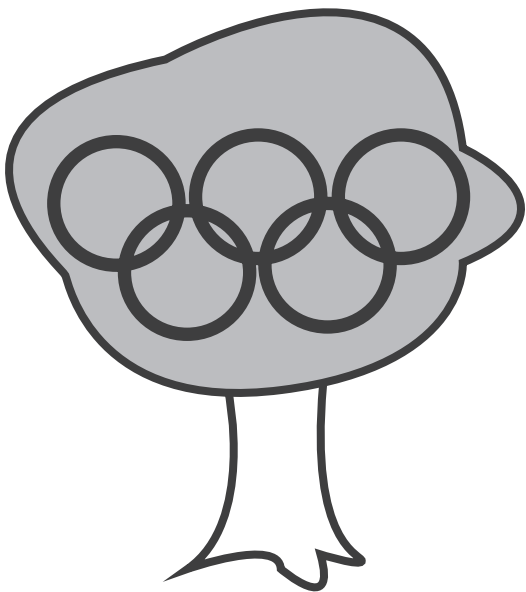
Fact 1: The Greek alphabet was the first to have vowels.



Fact 2: Greece has more than a thousand islands.



Fact 3: The Ancient Greeks held the first Olympic Games.



## Link Strategy

Students use this strategy to remember facts or information by first creating symbols or substitutes for important ideas and then linking those symbols or substitutes together in a narrative. A symbol is an image that reminds one of important information, like a rainbow to represent the concept of an arc. A substitute is a word that is easy to picture and sounds like the information one is trying to remember, like the word ark to remember the concept of the arc of a circle.

### Teacher Actions

- Creating a collection of important ideas that need to be memorized
- Helping students create and link together symbols or substitutes for important ideas

### Desired Student Responses

- Identifying important ideas that need to be memorized
- Creating symbols and substitutes for important ideas
- Linking symbols and substitutes together into a narrative or easily remembered sequence
- Successfully recalling information using the link strategy

### Extra Support

- Creating video versions of students' linking narratives (involving symbols and substitutes)

### Extension

- Asking students to create video versions of their linking narratives and asking the class to guess what information the narrative is supposed to help them remember

### Example Use of Link Strategy

This example was designed to help students remember the scientific process. There are generally six steps in the process: (1) ask a question, (2) do background research, (3) construct a hypothesis, (4) test the hypothesis by doing an experiment, (5) analyze the data and draw a conclusion, and (6) report the results.

Prince Science went on a **quest** with his handy **magnifying glass** to look for the magic **hippo**. He went through many **perils**, but trusted his horse, **Dart**, to **draw him to the hippo's conclave**. Afterwards, the hippo and the Prince developed quite **the rapport**.

**Quest:** Quest sounds like question and stands in for the first step of the scientific process.

**Magnifying glass:** Magnifying glass stands in as a symbol for research.

**Hippo:** Hippo is a substitute for the word hypothesis.

**Perils:** Perils is a substitute for the word experiment, because it sounds similar.

**Dart and the hippo's conclave:** The phrasing of this sentence is meant sound like and be a substitution for data and draw a conclusion.

**Rapport:** Rapport is a substitute for report.



## 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: \_\_\_\_\_

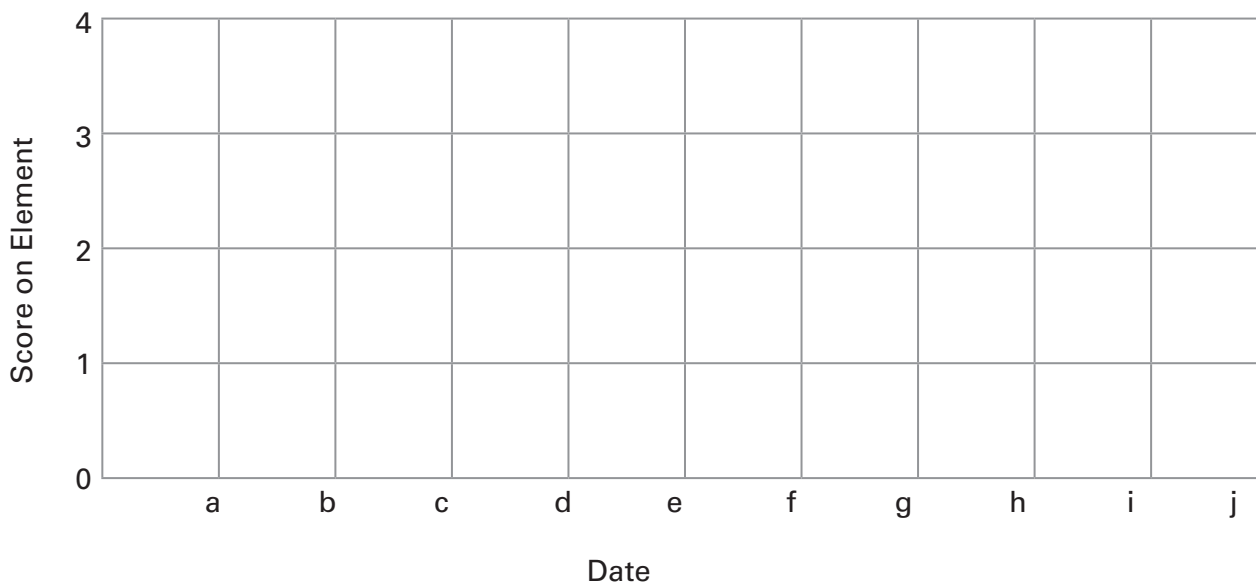
Goal Score: \_\_\_\_\_ by \_\_\_\_\_ (date)

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 recording and representing content.

Observation Date and Time: \_\_\_\_\_ Length of Observation: \_\_\_\_\_

Check Strategies You Intend to Use	Strategies	Description of What Was Observed
	Informal Outline	
	Summarizing	
	Pictorial Notes and Pictographs	
	Combination Notes, Pictures, and Summary	
	Graphic Organizers	
	Free-Flowing Web	
	Academic Notebooks	
	Dramatic Enactments	
	Mnemonic Devices	
	Rhyming Pegwords	
	Link Strategy	
	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 recording and representing 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
Using notes to record critical content	
Using graphic organizers to record critical content	
Creating pictures or pictographs to represent critical content	
Providing summaries for content	
Explaining the reasoning behind summaries	
Using an academic notebook to record ideas and notes	
Creating mnemonics to remember content	
Using mnemonics to remember content	
Demonstrating how they represented content	
Performing a dramatic enactment that relates to content	
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: \_\_\_\_\_

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Date	How did it go?

## Student Survey for Recording and Representing Content

- 1. My teacher asks me to show my learning using pictures, charts, and diagrams.**

Strongly Disagree      Disagree      Neither Agree  
Nor Disagree      Agree      Strongly Agree

- 2. My teacher uses activities that help me draw, sketch, or otherwise show my learning (besides writing about it).**

Strongly Disagree      Disagree      Neither Agree  
Nor Disagree      Agree      Strongly Agree

- 3. My teacher asks me to summarize what I have learned using graphic organizers, charts, diagrams, or pictographs.**

Strongly Disagree      Disagree      Neither Agree  
Nor Disagree      Agree      Strongly Agree

- 4. When I take notes, I often draw diagrams or pictures to show information.**

Strongly Disagree      Disagree      Neither Agree  
Nor Disagree      Agree      Strongly Agree

- 5. My teacher helps me create mind pictures to organize and remember important information.**

Strongly Disagree      Disagree      Neither Agree  
Nor Disagree      Agree      Strongly Agree

- 6. I can usually explain the main idea of a lesson.**

Strongly Disagree      Disagree      Neither Agree  
Nor Disagree      Agree      Strongly Agree

## Teacher Survey for Recording and Representing Content

**1. I ask students to record critical content through the use of notes or other linguistic representations.**

Often                      Sometimes                      Rarely                      Never                      I don't know

**2. I ask students to record content using nonlinguistic representations, including graphs, pictures, graphic organizers, and flow charts.**

Often                      Sometimes                      Rarely                      Never                      I don't know

**3. I ask students to write summaries of content.**

Often                      Sometimes                      Rarely                      Never                      I don't know

**4. I show students how and when to use different graphic organizers.**

Often                      Sometimes                      Rarely                      Never                      I don't know

**5. I ask students to explain the reasoning behind their representations of content.**

Often                      Sometimes                      Rarely                      Never                      I don't know

**6. I ask students to identify critical content.**

Often                      Sometimes                      Rarely                      Never                      I don't know

**7. I use mnemonics in class to help students remember critical content.**

Often                      Sometimes                      Rarely                      Never                      I don't know