EXAMINING SIMILARITIES & DIFFERENCES

CLASSROOM TECHNIQUES TO HELP STUDENTS DEEPEN THEIR UNDERSTANDING
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Connie Scoles West and Robert J. Marzano
With Kathy Marx and Penny L. Sell

Learning Sciences MARZANO CENTER

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The Essentials for Achieving Rigor series of instructional guides helps educators become highly skilled at implementing, monitoring, and adapting instruction. Put it to practical use immediately, adopting day-to-day examples as models for application in your own classroom.

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- **Examining Reasoning: Classroom Techniques to Help Students Produce and Defend Claims**
- **Recording & Representing Knowledge: Classroom Techniques to Help Students Accurately Organize and Summarize Content**
- **Examining Similarities & Differences: Classroom Techniques to Help Students Deepen Their Understanding**
- **Processing New Information: Classroom Techniques to Help Students Engage with Content**
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- **Using Learning Goals & Performance Scales: How Teachers Make Better Instructional Decisions**
- **Organizing for Learning: Classroom Techniques to Help Students Interact within Small Groups**
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—Connie Scoles West

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2011 Wisconsin Teacher of the Year
Eighth-Grade Science and Engineering Educator
Milwaukee, Wisconsin

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2014 Missouri Teacher of the Year
Rockwood Summit High School
Fenton, Missouri

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2013 Georgia Teacher of the Year finalist
Eagle’s Landing High School
McDonough, Georgia

Tracie Wagenfeld
2014 Maine Teacher of the Year finalist
Fifth-Grade Teacher
Willard School
Sanford, Maine
About the Authors

CONNIE SCOLES WEST, BSEd, MEd, spent her career in K–12 education as a classroom teacher and administrator in Cincinnati, Ohio, before joining Learning Sciences International as an independent staff developer in 2012. Connie brings expertise to her work from years of experience in a broad spectrum of leadership roles, including gifted education, mentoring, instructional coaching, school improvement, curriculum, professional development, and teacher evaluation. She has presented at numerous conferences on topics in literacy, mathematics, coaching, and curriculum and instruction. Connie earned bachelor’s and master’s degrees in education from Miami University in Oxford, Ohio.

ROBERT J. MARZANO, PhD, is CEO of Marzano Research Laboratory and Executive Director of the Learning Sciences Marzano Center for Teacher and Leader Evaluation. A leading researcher in education, he is a speaker, trainer, and author of more than 150 articles on topics such as instruction, assessment, writing and implementing standards, cognition, effective leadership, and school intervention. He has authored over 30 books, including *The Art and Science of Teaching* (ASCD, 2007) and *Teacher Evaluation That Makes a Difference* (ASCD, 2013).
KATHLEEN MARX, MSEd (Educational Leadership), MSEd (School Counseling), is a leading expert in personal development across industries. She has successfully assisted many districts nationally to implement deep school-improvement changes through her work with Learning Sciences International.

PENNY SELL, MSEd, has spent more than 30 years in public education, and her roles have included teacher, administrator, trainer, and consultant. She earned her bachelor’s degree in exceptional education from Central Michigan University and master’s degree in educational leadership from the University of Central Florida.
Introduction

This guide, *Examining Similarities & Differences: Classroom Techniques to Help Students Deepen Their Understanding*, is intended as a resource for improving a specific strategy of instructional practice: examining similarities and differences.

Your motivation to incorporate this strategy into your instructional toolbox may have come from a personal desire to improve your instructional practice through the implementation of a research-based set of strategies (such as those found in the Marzano instructional framework) or a desire to increase the rigor of the instructional strategies you implement in your classroom so that students meet the expectations of demanding standards such as the Common Core State Standards, Next Generation Science Standards, C3 Framework for Social Studies State Standards, or state standards based on or influenced by College and Career Readiness Anchor Standards.

This guide will help teachers of all grade levels and subjects improve their performance of a single instructional strategy: examining similarities and differences. Narrowing your focus on a specific skill, such as examining similarities and differences, will enable you to more fully understand its complexities to intentionally improve your instruction. Armed with deeper knowledge and practical instructional techniques, you will be able to intentionally plan, implement, monitor, adapt, reflect, and ultimately improve upon the execution of this element of your instructional practice. An individual seeking to become an expert displays distinctive behaviors, as explained by Marzano and Toth (2013):

- breaks down the specific skills required to be an expert
- focuses on improving those particular critical skill chunks (as opposed to easy tasks) during practice or day-to-day activities
- receives immediate, specific, and actionable feedback, particularly from a more experienced coach
- continually practices each critical skill at more challenging levels with the intention of mastering it, giving far less time to skills already mastered
This series of guides will support each of the previously listed behaviors, with a focus on breaking down the specific skills required to be an expert and giving day-to-day practical suggestions to enhance these skills.

**Building on the Marzano Instructional Model**

This series is based on the Marzano instructional framework, which is grounded in research and provides educators with the tools they need to connect instructional practice to student achievement. The series uses key terms that are specific to the Marzano model of instruction. See Table 1, Glossary of Key Terms.

**Table 1: Glossary of Key Terms**

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCSS</td>
<td>Common Core State Standards is the official name of the standards documents developed by the Common Core State Standards Initiative (CCSSI), the goal of which is to prepare America’s students for college and career.</td>
</tr>
<tr>
<td>CCR</td>
<td>College and Career Readiness Anchor Standards are broad statements that incorporate individual standards for various grade levels and specific content areas.</td>
</tr>
<tr>
<td>Desired result</td>
<td>The intended result for the student(s) due to the implementation of a specific strategy.</td>
</tr>
<tr>
<td>Monitoring</td>
<td>The act of checking for evidence of the desired result of a specific strategy while the strategy is being implemented.</td>
</tr>
<tr>
<td>Instructional strategy</td>
<td>A category of techniques used for classroom instruction that has been proven to have a high probability of enhancing student achievement.</td>
</tr>
<tr>
<td>Instructional technique</td>
<td>The method used to teach and deepen understanding of knowledge and skills.</td>
</tr>
<tr>
<td>Content</td>
<td>The knowledge and skills necessary for students to demonstrate standards.</td>
</tr>
<tr>
<td>Scaffolding</td>
<td>A purposeful progression of support that targets cognitive complexity and student autonomy to reach rigor.</td>
</tr>
<tr>
<td>Extending</td>
<td>Activities that move students who have already demonstrated the desired result to a higher level of understanding.</td>
</tr>
</tbody>
</table>

The educational pendulum swings widely from decade to decade. Educators move back and forth between prescriptive checklists and step-by-step
lesson plans to approaches that encourage instructional autonomy with minimal regard for the science of teaching and need for accountability. Two practices are often missing in both of these approaches to defining effective instruction: 1) specific statements of desired results, and 2) solid research-based connections. The Marzano instructional framework provides a comprehensive system that details what is required from teachers to develop their craft using research-based instructional strategies. Launching from this solid instructional foundation, teachers will then be prepared to merge that science with their own unique, yet effective, instructional style, which is the art of teaching.

*Examining Similarities & Differences: Classroom Techniques to Help Students Deepen Their Understanding* will help you grow into an innovative and highly skilled teacher who is able to implement, scaffold, and extend instruction to meet a range of student needs.

**Essentials for Achieving Rigor**

This series of guides details essential classroom strategies to support the complex shifts in teaching that are necessary for an environment where academic rigor is a requirement for all students. The instructional strategies presented in this series are essential to effectively teach the CCSS, the Next Generation Science Standards, or standards designated by your school district or state. They require a deeper understanding, more effective use of strategies, and greater frequency of implementation for your students to demonstrate the knowledge and skills required by rigorous standards. This series includes instructional techniques appropriate for all grade levels and content areas. The examples contained within are grade-level specific and should serve as models and launching points for application in your own classroom.

Your skillful implementation of these strategies is essential to your students’ mastery of the CCSS or other rigorous standards, no matter the grade level or subject matter you are teaching. Other instructional strategies covered in the Essentials for Achieving Rigor series, such as examining reasoning and engaging students in cognitively complex tasks, exemplify the cognitive complexity needed to meet rigorous standards. Taken as a package, these strategies may at first glance seem quite daunting. For this reason, the series focuses on just one strategy in each guide.
Examining Similarities and Differences

The topic of this guide, examining similarities and differences, is an instructional strategy comprising four discrete cognitive processes: comparing, classifying, creating metaphors, and creating analogies. Each of these processes, when directly taught to and modeled for students, has the potential not only to deepen their understanding of content knowledge but also enhance their long-term retention and problem-solving abilities related to critical content. A simple way to think about this strategy is to recall a song from the *Sesame Street* TV show: “One of these things is not like the others.” That song is based on a cognitive process critical to the acquisition of knowledge: identifying the basic relationships between objects, ideas, concepts, events, places, and people.

Your students’ abilities to interact with content while processing that content by comparing, classifying, and creating metaphors or analogies enables them to constantly add new content knowledge to previously learned material in their long-term memories, thereby creating new and deeper knowledge. The purpose of this guide is to give you specific techniques to teach your students how to examine similarities and differences in the context of critical content.

The Effective Implementation of Examining Similarities and Differences

There are six steps that will lead you to the effective implementation of examining similarities and differences:

1. Develop and consistently use student-friendly definitions for the four cognitive processes that comprise examining similarities and differences: 1) comparing, 2) classifying, 3) creating metaphors, and 4) creating analogies.

2. Directly teach and intentionally model these four cognitive processes for students.
3. Gain proficiency in teaching and modeling the mental tools students need to examine similarities and differences as they pertain to critical content: 1) identifying critical attributes, 2) summarizing, and 3) generalizing.

4. Gain proficiency in teaching and modeling the recording and representing tools students need to examine similarities and differences as they pertain to critical content: 1) sentence stems and 2) graphic organizers.

5. Continually remain focused on student mastery of critical content as the ultimate goal of examining similarities and differences.

6. Gradually release responsibility to students for managing their own thinking and learning about the similarities and differences in critical content.

Each of these six prerequisites is described in more detail in the following sections. First, think about what you already know and understand about identifying similarities and differences. Then, integrate any new information that expands and enriches your previous understandings.

**Master the Definitions**

As an educator, you have no doubt routinely used the terms compare, classify, metaphor, and analogy in your own academic endeavors as well as your classroom. However, to successfully implement examining similarities and differences, you will need to develop solid student-friendly definitions for these terms. In addition, you will need to develop a comprehensive understanding of how the demands of your content and the background knowledge and maturity of your students interact with these processes.

Collaborate with colleagues on writing common definitions, and use the following definitions to anchor your implementation. The words in parentheses are synonyms that are appropriate for use with older learners. However, if you teach primary students, keep the definitions simple and student friendly.

- **Comparing** is a way (a cognitive process) to identify similarities and differences between or among things.
Examsing Similarities and Differences

- **Classifying** is a way to put things that are alike into categories based on their characteristics (attributes, properties, traits).

- A *metaphor* is a characteristic (attribute) shared by two objects (topics) that seem to be quite different.

- An *analogy* is a comparison of two similar objects (things, ideas, people).

Notice that the first two terms (comparing and classifying) are cognitive processes and the last two terms (metaphor and analogy) are patterns that communicate relationships between things. To create metaphors and analogies based on content, students must be able to identify similarities and differences. Also recall that the term comparing used in the context of this guide carries the meaning of both comparing and contrasting.

**Directly Teach and Intentionally Model**

If your students are to become skilled at cognitively processing content as just described, first directly teach them what an individual process is and what kinds of thinking demands are required to execute the process. Then, be prepared to think aloud and model for them how and what you are thinking as you examine similarities and differences. This kind of modeling requires that you intentionally slow down your own thinking in order to articulate for students the kinds of connections, background knowledge, and problem solving you are drawing upon to make sense of the similarities and differences in the content or text.

**Gain Proficiency Using the Mental Tools Needed to Examine Similarities and Differences**

There are three mental tools that will frequently be mentioned in the context of effectively implementing examining similarities and differences: 1) identifying critical attributes, 2) summarizing, and 3) generalizing. The first tool comes into play the minute you decide to use a comparing or classifying technique.Unless both you and your students understand and can identify the important characteristics or attributes of the two or more things that will be compared or classified, you will be wasting precious instructional time on unimportant information. You should routinely use either of the other tools—summarizing and generalizing—to conclude any lesson in which students have identified similarities and differences.
Gain Proficiency Using the Recording and Representing Tools Needed to Examine Similarities and Differences

In addition to the mental tools described previously, there are two tools for recording and representing that will enhance your students’ abilities to understand and remember critical content: 1) sentence stems and 2) graphic organizers. Sentence stems are sentence skeletons that contain a basic structure setting forth the parameters of a thinking task combined with blanks for students to fill in with appropriate answers. Sentence stems can be used for comparing tasks as well as creating analogies and metaphors.

Graphic organizers are another important tool for representing similarities and differences. There are specific organizers for both comparing and classifying. Note that graphic organizers and sentence stems are means to the end (examining similarities and differences)—not ends in and of themselves. Sentence stems and/or organizers are found throughout this guide. In addition, templates for many of the organizers are found in Resource A.

Focus on Content

No matter which technique you choose for teaching examining similarities and differences to your students, remain focused on content. Content goals often involve both declarative knowledge (informational) and procedural knowledge (skills and processes). The strategy presented in this guide is most effective in helping students deepen their understanding of declarative knowledge. The strategy can also clarify confusion between related concepts. Examining similarities and differences is applicable to all disciplines and grade levels.

As you become more skilled in applying this strategy, you will see remarkable changes in your students’ abilities to process and understand content. They will be able to generalize and refine schema independently. You can effectively implement this strategy by engaging students in the many different instructional techniques found in this guide.

Gradually Release Responsibility for Thinking to Students

You can easily lose sight of your defining role as a teacher: getting your students ready to assume total responsibility for their own thinking about similarities and differences. Expecting students to copy your notes and graphic organizers from the board and dictating to students how their sentence stems should
be completed are two powerful ways to undermine and diminish your students’ opportunities to learn.

The following teacher behaviors are associated with the effective implementation of examining similarities and differences:

- identifying critical content for examination
- identifying the similarities and differences between critical content concepts
- providing opportunities for students to linguistically and nonlinguistically represent similarities and differences
- asking students to summarize what they have learned from a lesson or text
- guiding students to generalize or draw conclusions after the examination of similarities and differences
- facilitating the use of digital resources to find credible and relevant information to support the examination of similarities and differences

As you set out to become more skilled at implementing this strategy, think about how you can avoid some of the common mistakes. The following roadblocks can very quickly take your teaching and students’ learning off course:

- The teacher fails to take the time needed to directly teach and model the strategy.
- The teacher fails to facilitate his students’ abilities to identify critical attributes specifically related to critical content.
- The teacher fails to take into account students’ background knowledge and working memory capacities by asking them to compare too many things using too many comparison criteria.
- The teacher fails to ask students to draw conclusions or make generalizations after a lesson, depriving them of the most important aspect of this strategy.
Failing to Take the Time Needed
When students examine similarities and differences, they are asked to analyze specific topics based on certain criteria to gain new insights and come to deeper understandings. To do this well, students first must have some foundational knowledge about each thing being compared. If they know little, or have only superficial basic knowledge, then the activity will not be of much benefit. Provide students adequate time and learning experiences to understand foundational information before asking them to examine similarities and differences.

Failing to Consider Students’ Readiness for the Task
Although it is tempting to add more topics to compare, or list more criteria to examine, beware of creating a task that is too complicated for students to complete well. Choose a reasonable number of topics to compare (typically two or three) with a small number of important criteria to look at for each topic.

Failing to Consider Students’ Background Knowledge
A common mistake related to students’ readiness is overlooking how much you know about a topic in comparison to what your students know. Bear in mind that any lesson that assumes your students have background knowledge they do not is destined to end in frustration for both you and your students.

Failing to Generalize Findings
The intended outcome of comparison activities is for your students to gain new insight into the content. Expect students to generalize and summarize their findings as a final step in any lesson. Without this final step, students may exit your classroom without the kind of deep and long-lasting knowledge they need to succeed at the next level.

Monitoring for the Desired Result
An instructional strategy is only as effective as the learning that results from its implementation. Effective implementation of this strategy is more than just having students participate in a thought-provoking or engaging activity. It must include monitoring. Ask: Did my students deepen their understanding of the content by completing this work? How do I find out? In fact, consider a more specific question: Was the desired result of the strategy achieved?
Examining Similarities and Differences

Specifically, the desired result of examining similarities and differences is for students to be able to describe how various aspects of the content are similar and different and then be able to state any new information or generalizations they have learned as a result of the activity. There are multiple ways teachers can monitor whether the majority of students are displaying this desired result:

1. Students can create analogies and/or metaphors that reflect their depth of understanding of content.
2. Students’ comparison and classification activities reflect their depth of understanding of content.
3. Students’ work indicates that they have accurately identified similarities and differences and can show how their knowledge has been extended as a result of the activity.
4. Students can summarize their findings relative to examining similarities and differences.
5. Students can present evidence to support their explanation of similarities and differences.
6. Students can generalize patterns or draw conclusions about insights gained and apply them to new examples and ideas.
7. Students can navigate digital resources to find credible and relevant information to support similarities and differences.

Because this strategy—examining similarities and differences—requires deep and rigorous thinking, monitoring will require that you ask probing questions, assess the quality of group discussions and student work, and observe students closely during the lesson. Find ways to hear the thinking of each student, and do not accept group responses as an effective means of monitoring individuals. In addition, give students opportunities to revise their thinking after a lesson or discussion and to also explain how they gained a better understanding of the important content. This broader and deeper understanding of monitoring will strengthen and improve your teaching performance and ultimately your students’ learning.
Scaffolding and Extending Instruction to Meet Students’ Needs

As you monitor for the desired result of this strategy, you will probably realize that some students are not able to accurately identify similarities and differences or generalize new insights. Others are easily able to demonstrate the desired result of the strategy. Armed with this knowledge, you must adapt instruction to meet the needs of your students.

There are four categories of support you can provide for students who need scaffolding (Dickson, Collins, Simmons & Kame’enui, 1998):

- enlisting help for students from their peers, instructional aides, or other paraprofessionals
- manipulating the difficulty level of content that you are teaching (for example, providing an easier reading level that contains the same content)
- breaking down the content into smaller chunks to make it more manageable
- giving students organizers to clarify and guide their thinking through a task one step at a time

Within each technique described in this guide, there are examples of ways to scaffold and extend instruction to meet the needs of your students. Scaffolding provides support that targets cognitive complexity and student autonomy to reach rigor. Extending moves students who have already demonstrated the desired result to a higher level of understanding. These examples are provided as suggestions and should be adapted to target the specific needs of your students. Use them to spark ideas as you plan to meet the needs of your English language learners, students who receive special education or lack support at home, or simply the student who was absent the day before. The extension activities can help you plan for students in your gifted and talented program or those with a keen interest in the subject matter you are teaching.
Teacher Self-Reflection

You can use the questions below to self-reflect on your own level of confidence and competence with this strategy. Ideally, teachers will work collaboratively to implement examining similarities and differences and use the reflection questions to prompt discussions and sharing with colleagues. In addition, teachers can benefit from systematically gathering student reflections on their learning and perceptions of the instruction in the classroom. These multiple inputs can inform a teacher’s self-reflection and plans for professional growth. Use the following set of reflection questions to guide you. The questions begin with reflecting on how to start the implementation process and move to progressively more complex ways of helping students examine similarities and differences.

- How can you begin to incorporate some aspect of this strategy in your instruction?
- What are some ways you can encourage your students to become more independent in their examination of similarities and differences?
- What are some ways you can check to see if most students are accurately identifying similarities and differences?
- What are ways you can adapt and create new techniques for identifying similarities and differences that address unique student needs and situations?
- What are you learning about your students as you adapt and create new techniques?

Instructional Techniques to Help Students Identify Similarities and Differences

There are many ways to help your students effectively interact with new knowledge and ultimately master the learning targets or standards of your grade level or content area. The ways you choose to design lessons that teach and show students how to identify similarities and differences will depend on your grade, the content, and the makeup of your class. These various ways or options are called instructional techniques. In the following sections of the
book, you will find descriptions of how to implement these techniques for examining similarities and differences:

- Instructional Technique 1: Comparing using sentence stems, summarizers, and constructed responses
- Instructional Technique 2: Comparing using graphic organizers
- Instructional Technique 3: Classifying using sorting, matching, and categorizing
- Instructional Technique 4: Classifying using graphic organizers
- Instructional Technique 5: Comparing by Creating Metaphors and Similes
- Instructional Technique 6: Comparing by Creating Analogies

All of the techniques are similarly organized and include the following components:

- a brief introduction to the technique
- ways to effectively implement the technique
- common mistakes to avoid as you implement the technique
- examples and nonexamples from elementary and secondary classrooms using selected learning targets or standards from various documents
- ways to monitor for the desired result
- ways to scaffold and extend instruction to meet the needs of students
Instructional Technique 1

COMPARING USING SENTENCE STEMS, SUMMARIZERS, AND CONSTRUCTED RESPONSES

This technique provides three approaches to comparing two things: 1) sentence stems, 2) summarizing organizers, and 3) constructed responses. Sentence stems are most appropriate for younger students, students with limited experience writing in English, or students who are struggling with reading or the difficulty level of the content. The second approach uses a type of organizer known as a summarizer to notch up your expectations for students. Using this approach, students write a one-sentence summary describing the similarities and differences they identify in their comparison of two things. The third approach requires students to write a response to a prompt. A constructed response describes similarities (how aspects are alike) and differences (how aspects are different) in one or two paragraphs.

Ideally, you will become comfortable with all of these approaches so you can choose the one that best meets the needs of your students in a given instructional setting. Each approach is slightly more challenging than the previous one. Keep that in mind as you decide where to begin teaching your students how to make comparisons between two things.

Using Sentence Stems to Compare

Sentence stems appear at first glance to be a typical fill-in-the-blanks exercise. Indeed, students do fill in the blanks, but the blanks must be filled in with very specific information about the similarities and differences between two things. Table 1.1 contains a lesson plan for teaching your students how to use sentence stems for making comparisons using content text.
### Table 1.1: A Lesson Plan for Making Comparisons Using Sentence Stems

<table>
<thead>
<tr>
<th>Lesson Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Directly teach students the meanings of the following terms: <em>compare</em>, <em>similarities</em>, and <em>differences</em>.</td>
<td>As you give directions to students in the course of a lesson, or as they later encounter prompts on state assessments, they may be confused by unfamiliar terms. In other words, they may know how to do “it,” but not recognize the way “it” is being described. If making comparisons using sentence stems is a technique that you will be using frequently, prepare a poster for students to consult when they are confused about what a term means. Use everyday examples to explain the terms. If you are accustomed to using the term <em>compare/contrast</em> to refer to comparison tasks, note that in the context of this guide, the term <em>compare</em> refers to its more traditional meaning of identifying similarities and dissimilarities between two things. However, if your students need to hear <em>compare/contrast</em> because that is the term used in your state standards and assessments, then make an adjustment to this lesson.</td>
</tr>
<tr>
<td>2. Directly teach students what a sentence stem is and the purpose of using it.</td>
<td>Explain that the sentence stems they will be using are designed to help them become experts at figuring out the similarities and differences between two things. Once again, use examples from familiar settings before expecting students to transfer their understandings of the terms and technique to content knowledge.</td>
</tr>
<tr>
<td>3. Create a sentence stem that requires students to compare two aspects of the content. Choose from one of the two sample stems.</td>
<td>You have several choices of sentence stem constructions to choose from: 1) a general comparison, 2) a more specific comparison, 3) an open-ended comparison, or 4) a comparison that requires a certain number of responses. Figure 1.1 contains examples of each of these types of sentence stems.</td>
</tr>
<tr>
<td>4. Choose content text that has what is generally referred to as a compare/contrast text structure. Then prepare a sentence stem that specifically correlates with the kind and number of comparisons in the text. After, model your reading of the text and the completion of the sentence stem for your students.</td>
<td>This modeling step is the most critical aspect of your lesson. Walk your students through the cognitive process, showing them how you make a comparison. Sentence stems are useful for simple comparisons of two things. Save more complicated comparisons for Instructional Technique 2, Comparing Using Graphic Organizers.</td>
</tr>
</tbody>
</table>

There are many varieties of sentence stems as noted in the lesson plan (Table 1.1) and Figure 1.1. As you start to implement this technique, you will likely provide students with the content-specific items you want them to compare. This assignment could come after students have listened to a brief lesson, read an article or section of content text, or watched a short video.
As students become more skilled at completing assigned sentence stems, transition them from using stems where you have chosen the items to be compared to expecting them to use stems in which they must identify the two things to be compared that were identified in the lesson, text, or video. This is part of releasing responsibility to students for listening, reading, and thinking on their own or with peers. Figure 1.1 contains partially completed stems as well as blank stems. Use the examples to guide your instruction. Resource A.1 contains a reproducible template of a sentence stem.

**Figure 1.1: Examples of Sentence Stems**

<table>
<thead>
<tr>
<th>Type of Sentence Stem</th>
<th>Example</th>
</tr>
</thead>
</table>
| General stem comparing larger groups | Reptiles are like amphibians because ______________________________  
______________________________________.  
Reptiles are different from amphibians because ________________  
______________________________________. |
| Specific stem comparing two specific items | A frog and toad are alike because ______________________________  
and ______________________________.  
They are different because ______________________________, and ______________________________. |
| Open-ended stem that requires a certain number of responses | ______________________________ and ______________________________ are similar because they both ______________________________  
______________________________________.  
are dissimilar because ______________________________ is ______________________________, but ______________________________ is ______________________________. |

**Using Summarizers to Compare**

Summarizing is one way to ensure that students deepen their understanding of content knowledge in the process of making comparisons, thereby bringing closure to a comparing task. A summarizer is simply a graphic organizer that builds summarizing into the comparison process. The summarizer used in Figure 1.2 provides students with a planning and writing area in which to take notes in preparation for writing a one-sentence summary about their findings. Table 1.2 is a lesson plan for teaching students how to use this summarizer to compare two things. Figure 1.2 is an example of a completed summarizer. Many students and even some teachers find summarizing to
be challenging, but with sufficient scaffolding and frequent opportunities to practice, summarizing can become a habit for your students. Use the following lesson to scaffold the summarizing process.

Table 1.2: A Lesson Plan for Teaching Students How to Use a Similarities and Differences Summarizer to Compare Two Things

<table>
<thead>
<tr>
<th>Lesson Step</th>
<th>Discussion</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Review the definitions you use in your classroom for the terms summarizing, similarities, and differences.</td>
<td>The definition of summarizing that you choose to use will depend on the maturity of your students. You may define a summary as a sentence in the students’ own words describing the central idea and including some supporting details of a story or article. However, summarizing the results of examining similarities and differences requires that students engage in a somewhat deeper analysis of their findings, including explanations for why they have chosen to highlight certain similarities and differences.</td>
</tr>
<tr>
<td>2. Show students a blank summarizer—an organizer that provides a specific place on which students are to write their summaries. Explain to students that you will be modeling for them how to identify the similarities and differences between two cities using a blank copy of Figure 1.2.</td>
<td>You can adapt any graphic organizer you have designed for comparing one or more things to a summarizer by designating a specific space or area on the organizer in which a summary can be written.</td>
</tr>
<tr>
<td>3. Explain that once you have identified the similarities and differences between two things, you will write a summary in the summary box in the center column of the summarizer.</td>
<td>Remind students to pay close attention as you explain where you located the information you used to fill the summarizer (e.g., social studies book, Internet search, brochures from a travel agent). Also tell students to listen for your explanation about how you figured out the ways in which the cities were alike and different.</td>
</tr>
<tr>
<td>4. After you have filled in all of the boxes except the summary box, you have two choices: 1) if your students have been practicing writing summaries, challenge them to write a summary sentence using the information from the summarizer or 2) model writing the summary yourself.</td>
<td>As you model summarizing, show students how you experiment with various ideas and phrases found on the summarizer, writing down a phrase or two, reading it aloud to see if it makes sense, then crossing out words that don’t sound right, and rewriting the sentence. Writing a good summary sentence may take several tries to get it just right.</td>
</tr>
</tbody>
</table>
Figure 1.2: Similarities and Differences Summarizer Comparing Two Cities in the United States

<table>
<thead>
<tr>
<th>City #1</th>
<th>Summary Box</th>
<th>City #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tucson, Arizona</td>
<td>Tucson, Arizona, a southwest desert community, and Honolulu, Hawaii, a tropical island paradise, are desirable, multicultural locations in which to live and vacation.</td>
<td>Honolulu, Hawaii</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differences</th>
<th>Similarities</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Desert plants and animals</td>
<td>Cities in the United States</td>
<td>Tropical plants and animals</td>
</tr>
<tr>
<td>Mexican and Native American cultures</td>
<td>Favorite vacation spots for people all over the world</td>
<td>Japanese, Hawaiian, and Asian cultures</td>
</tr>
<tr>
<td>Landlocked</td>
<td>Multicultural</td>
<td>Surrounded by water</td>
</tr>
<tr>
<td>Gets little rain and has very low humidity</td>
<td>Residents and visitors can wear shorts and sandals most of the year</td>
<td>Tropical rain forest with very high humidity</td>
</tr>
</tbody>
</table>

Using a Constructed Response to Compare Two Things

A constructed response is a short answer that gives evidence of your students’ mastery of a specific cognitive process (comparing), as applied to an aspect of content knowledge. In the context of this technique, students are asked to compare two things that are content specific and then generate a paragraph or two explaining the similarities and differences between the two things. Constructed responses often have a generic outline or template to guide students in their first attempts at constructing a response. One will be suggested for you as part of the sample lesson plan. The constructed response requires that students identify similarities and differences as well as organizing and writing the response. The constructed response also calls for students to make decisions about the relative importance of the identified similarities and differences. Table 1.3 displays a lesson plan for teaching your students how to write a short constructed response to answer a comparison question.
### Table 1.3: Lesson Plan for Showing Students How to Generate a Constructed Response to Answer a Comparison Question

<table>
<thead>
<tr>
<th>Lesson Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Select the two items, ideas, individuals, or concepts to be compared.</td>
<td>Choose the things to be compared from a specific area of content that is most important for students to understand. The goal of writing a constructed response is not to be able to write a constructed response. The goal in writing the response is to deepen students’ knowledge of content. Do not waste processing opportunities on trivial or less-than-critical content.</td>
</tr>
<tr>
<td>2. Review the definitions for the terms <em>compare</em>, <em>constructed response</em>, <em>similarities</em>, and <em>differences</em>.</td>
<td>If you plan to have students write constructed responses regularly, create a poster containing the definitions and steps in this process.</td>
</tr>
<tr>
<td>3. There are two organizers to scaffold your students’ writing of the constructed response.</td>
<td>Figure 1.3 lists the attributes or aspects of the items to be compared in the first column. The second and third columns contain the items to be compared: two cities in the United States. Note the question that is asked for each column: What is most important about the aspect?</td>
</tr>
<tr>
<td>• Completed examples are found in Figures 1.3 and 1.4.</td>
<td></td>
</tr>
<tr>
<td>• Display your own version of an empty planning and writing form on your screen or board on which you will list the attributes or categories being compared and the two things being compared.</td>
<td></td>
</tr>
<tr>
<td>4. Move through the categories one at a time, writing down the pertinent facts you have discovered in your research. After you have written down the facts, ask yourself the questions on the right.</td>
<td>• Are the two things being compared more different than alike?</td>
</tr>
<tr>
<td>• Are the two things being compared more alike than different?</td>
<td>• What is their most important similarity?</td>
</tr>
<tr>
<td>• What is their most important difference?</td>
<td></td>
</tr>
<tr>
<td>5. Using the answers to the above questions, generate a topic sentence for your constructed response.</td>
<td>Write your topic sentence in the appropriate space in your organizer. Continue to evaluate each aspect from Figure 1.3 and write a sentence using supporting evidence from the figure.</td>
</tr>
<tr>
<td>6. Write these sentences on your constructed-response form, adding a conclusion.</td>
<td>See Figure 1.4 for a completed example.</td>
</tr>
<tr>
<td>Aspect of the city to be compared</td>
<td>City #1 Tucson, Arizona</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------------------</td>
</tr>
<tr>
<td>Location</td>
<td>United States Mainland</td>
</tr>
<tr>
<td>Population</td>
<td>Population of 520,116 with a metropolitan-area population of 980,263</td>
</tr>
<tr>
<td>Cultures</td>
<td>Mexican American, Native American, and Caucasian</td>
</tr>
<tr>
<td>Climate</td>
<td>Hot and dry in the summer, moderate and warm in the winter</td>
</tr>
<tr>
<td>Economy</td>
<td>Tourism and health care are major sources of economic strength.</td>
</tr>
</tbody>
</table>

Prompt: After comparing the various aspects of two cities, take a position on whether they are more alike or more different and support that position with evidence from the “What is most important about the aspect?” boxes in Figure 1.3.
Examining Similarities & Differences

Figure 1.4 A Sample Comparison Constructed Response Comparing Two Cities

<table>
<thead>
<tr>
<th>Organizational Structure</th>
<th>Planning Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topic sentence</td>
<td>Although Tucson and Honolulu have very different geographic locations, they are far more alike than different.</td>
</tr>
<tr>
<td>Location</td>
<td>Tucson is situated on the mainland in a landlocked area with hardly any natural bodies of water, while Honolulu is on an island surrounded by the Pacific Ocean. However, in all of the following aspects, the cities are very similar.</td>
</tr>
<tr>
<td>Population</td>
<td>Tucson and Honolulu are cities with about the same metropolitan population.</td>
</tr>
<tr>
<td>Cultures</td>
<td>They are both very multicultural with residents from varying backgrounds and homelands.</td>
</tr>
<tr>
<td>Climate</td>
<td>Even with its hot and dry summers, Tucson is similar to Honolulu in that it attracts many visitors from around the world to enjoy moderate temperatures and sunshine during the winter months.</td>
</tr>
<tr>
<td>Economy</td>
<td>Tourism, health care, and higher education are major contributors to the economies of both cities.</td>
</tr>
<tr>
<td>Conclusion sentence</td>
<td>Despite their different locations and geographic features, Tucson and Honolulu are both attractive cities in which to live, work, and vacation.</td>
</tr>
</tbody>
</table>

Common Mistakes

Most teachers have experienced the frustration of a lesson gone wrong. Learn from the mistakes of others before you plan your first lesson based on the various aspects of this technique. Here are some common mistakes to avoid when showing your students how to make comparisons using tools such as sentence stems, summarizers, and constructed responses:

- The teacher assumes that because key vocabulary has been introduced in prior lessons, students have mastered it.
- The teacher fails to review and remind students of key vocabulary meanings and usages.
- The teacher fails to take the time needed to directly teach and model the various processes for students.
- The teacher chooses content and text that is too difficult for students’ first exposure to the various tools.
Instructional Technique 1

- The teacher does not release responsibility to students for doing the thinking necessary to complete sentence stems, summarizers, and constructed responses.

- The teacher provides answers and statements for students to copy into their sentence stems, summarizers, and writing and planning forms for constructed responses.

- The teacher fails to transition to more difficult tasks when students are ready for the challenge.

Examples and Nonexamples of Comparing Using Sentence Stems and Constructed Responses

The following examples and nonexamples demonstrate the use of various tools to make comparisons.

*Elementary Example of Comparing Using Sentence Stems*

The specific learning target being addressed in this example is *comparing and contrasting two or more versions of the same story* (CCSS English Language Arts Standard for Literacy RL.2.9). The class has listened to read-alouds and independently read the text of two versions of *Little Red Riding Hood*—one, the traditional tale, and the other, a Chinese version called *Lon Po Po*. Today, the teacher asks students to compare the two versions of the story. He gives each student a piece of paper with the following sentence stem written on the top half of the page: The story of *Lon Po Po* is like the story of *Little Red Riding Hood* because ________________. The bottom half of the page contains this sentence stem: *Lon Po Po* is different from *Little Red Riding Hood* because ________________. Here is how he introduces the activity.

Today we are going to look for the things that are alike and different about two stories we have read: *Little Red Riding Hood* and *Lo Po Po*. Look at your think sheet. First, finish the sentence on the top half of the page by writing down the reason that the stories are alike. Then, finish the sentence stem on the bottom half of the page by writing down the reason that the stories are different.
The students come up with multiple similarities and differences, and the teacher asks them to share answers with their partners. He then hangs up two pieces of chart paper, writing why the stories are alike on one piece and why the stories are different on the other. Before a silent reading period begins, he directs each pair of partners to come up to the two pieces of chart paper, one pair at a time, and write down their similarities and differences. While the students are silently reading, the teacher has time to monitor their responses and note any students who have difficulties with similarities and differences. Following silent reading, the teacher holds a group discussion, asking students to point out the widespread agreement among the class members as well as some instances in which a student has identified a rather unusual similarity or difference. The teacher gives this student an opportunity to explain her thinking, therefore giving the class an opportunity to see how many different ways the text can be processed.

**Elementary Nonexample of Sentence Stems**

A second-grade teacher in a nearby classroom is working on the same learning target as the example teacher but has added a new wrinkle to the assignment. She asks her students to complete the following sentence stems after reading various fairy tales from other countries:

*Cinderella, Princess Furball, and The Golden Sandal are alike because__________________.*

Fairy tales from other countries are different because__________________

She then asks students to complete the sentence stems in their reading journals and draw pictures of their favorite fairy tale character. The point of sentence stems is to guide students to compare two items and identify specific similarities and differences between those two items. This activity took both students and teacher off task.

**Secondary Example of Comparing Using a Constructed Response**

This secondary example uses two specific learning targets. The first learning target being addressed is analyzing the debate over and reasons for United States entry into World War II (Kansas Social Studies Curriculum Standards, 5.2.5). The second learning target is analyzing how two or more texts
address similar themes or topics in order to build knowledge or to compare the approaches the author takes (CCR Anchor Standard 9 for Reading).

A high school teacher of American history wants his students to extend and deepen their knowledge regarding December 7, 1941, the attack on Pearl Harbor by Japan. He gives students two articles to read in advance of the lesson. The articles are written from different perspectives, and he wants his students to compare the approaches that the two authors take. He knows that comparing the articles from the author’s point of view will not only give students a much deeper understanding of the content, but also enable them to become more skilled in their content reading and writing abilities. The teacher introduces the lesson in this way:

Good morning, class. Today I’m privileged to have your English teacher here to team up with me. My area of expertise is history, and her expertise is English. We are working together to learn from each other and help you deepen your knowledge about a very significant event in the history of our country. You’ve read the textbook, and we’ve had some stimulating discussions about the bombing of Pearl Harbor, but our approach today is a bit different. Earlier in the week, I gave you two articles to read and discuss in your small groups. We are going to return to those articles and compare the approaches the two authors took to writing about Pearl Harbor.

The English teacher has prepared two templates similar to those found in Figures 1.3 and 1.4. Her template includes the following aspects of an author’s approach: 1) What is the author’s relationship to the topic? 2) How does the author organize thoughts and present information? 3) What is the author’s attitude or posture toward the subject? and 4) What is the author’s purpose for writing? The teachers decide to model the first question together. The English teacher explains to students some questions they can ask relative to the author’s relationship to the topic, and the history teacher shares what he believes each author’s perspective to be based on his content knowledge and knowledge about the authors. After modeling possible responses
to the first question for both articles and writing them in the appropriate boxes on the organizer, the English teacher moves to the second aspect of an author’s approach and explains some various possible ways authors can organize their thoughts. At this point, she asks students to work in their small groups to come up with a comparison between the two articles in terms of how the authors organized their thoughts and presented information. The teachers monitor how students are doing with identifying the similarities and differences between the two authors’ approaches to the topic. With their background knowledge and previous reading of the articles prior to this lesson, the students are doing well. The teachers direct students to complete their organizers before class ends.

During the next class period, the teachers monitor students’ progress on their organizers and help them begin writing their constructed responses comparing whether the articles are more alike or more different, supporting their positions with evidence from the text, and drafting their answers to the “what is most important about the aspect” question.

Secondary Nonexample of Using Constructed Responses to Identify Similarities and Differences

The nonexample history teacher uses the same learning targets as the example teacher. She believes that she will be able to show her students how to compare the approaches two authors took to writing about the same historical event. In fact, she chooses the same articles as the example teacher, reads them carefully, and completes both organizers. She then hands out blank organizers to her students and proceeds to go through each aspect line by line asking students to copy her notes from the board. The teacher has done all of the thinking work and shortchanged her students’ learning as a result. Furthermore, she and her students have missed out on a rich interdisciplinary experience that held promise for deepening content knowledge as well as developing reading and writing skills in a specific discipline.

Determining If Students Can Make a Comparison between Two Things

The only way to determine if your direct teaching and modeling to show students how to identify similarities and differences is successful is to have students explain, write, or otherwise represent the critical content for you.
Here is a list of ways you can monitor whether your students are able to identify critical content as a result of their making comparisons:

- Students can explain how examining similarities and differences has deepened their understanding of content.
- Students can support their explanation of similarities and differences with evidence from the text.
- Students are able to create their own sentence stems to explain the similarities and differences they find in various forms of content.
- Students can summarize what they have learned from a lesson or text.
- Students can develop a constructed response that summarizes the important similarities and differences between two things.

The student proficiency scale for making comparisons between two things (see Table 1.4) will help you assess how well your students are progressing in identifying similarities and differences related to critical content. Use this scale to help you monitor for the desired result of making comparisons between two concepts, ideas, or other items.

### Table 1.4: Student Proficiency Scale for Comparing Using Sentence Stems, Summarizers, and Constructed Responses

<table>
<thead>
<tr>
<th>Emerging</th>
<th>Fundamental</th>
<th>Desired Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are able to make basic comparisons between topics.</td>
<td>Students are able to make comparisons between topics.</td>
<td>Students can make multiple comparisons between topics that demonstrate knowledge of the critical content.</td>
</tr>
<tr>
<td>Students can state what the comparison was about.</td>
<td>Students are able to explain comparisons that are already made.</td>
<td>Students summarize the critical content as it relates to the comparison they drew.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Students are able to summarize what they learned as a result of comparing.</td>
</tr>
</tbody>
</table>
Examining Similarities & Differences

Scaffold and Extend Instruction to Meet Students’ Needs

The ways in which you scaffold or extend making comparisons between two things will depend on which of the three approaches you choose to use with your students.

**Scaffolding**
- For students experiencing difficulties with sentence stems, go back one step and list a few characteristics of each item to be compared in a side-by-side fashion to help students make the comparisons more readily.
- For students experiencing difficulties with summarizing, provide students with sentence stems or graphic organizers to help them organize their thoughts.
- Choose content or text that is slightly easier to teach a technique.
- Pair students with stronger peers to provide role models.
- Accept sets of words and phrases or short answers to questions as an intermediate step in writing constructed responses.

**Extending**
- Provide sentence stems that are more open ended or that put together more complex concepts to be compared.
- Assign some students the task of creating their own sentence stems, using comparing, classifying, or analogies.
- Have some students gather all responses from the class and generalize the similarities and differences for that task and ask them to model their thinking for the class.
Instructional Technique 2

COMPARING USING GRAPHIC ORGANIZERS

As your students become more skilled at making comparisons between two things, concepts, or ideas, notch up your expectations by introducing them to a set of organizers that are specifically intended for making comparisons between two or more items: 1) Venn diagram, 2) double-bubble diagram, 3) comparison matrix, and 4) modified T-chart. Reproducible templates of these organizers can be found in Resources A.2 through A.5.

There are two instructional approaches to help your students become skilled at examining similarities and differences using graphic organizers. The first approach is teacher directed in which you select the ideas, events, or things to be compared and explicitly tell students the important attributes or criteria you want them to use for comparison. This teacher-directed method ensures that students spend their time considering the most important content characteristics and guarantees that almost all students will respond with conclusions that are reasonably correct. This structured approach is a good way to begin, especially when you want all students to learn specific critical information.

Another way to approach comparison activities is more student managed. Using this approach, you may or may not identify the items to be compared but will generally give students the responsibility for determining key attributes to use for comparison. You might even ask students to select the items being compared. Because this activity is more open ended, students are likely to come up with different answers and different conclusions from each other, making for more interesting group discussions and more diverse findings. Become comfortable with releasing responsibility to students for doing the thinking required for making comparisons using graphic organizers.
How to Effectively Implement Comparing Using Graphic Organizers

Learning to make comparisons using graphic organizers requires teaching your students how to almost simultaneously execute two different sets of skills: 1) making comparisons and 2) translating the information derived from making those comparisons to a specific graphic organizer.

There are four mental substeps involved in the overall cognitive process of making comparisons: 1) choosing exactly what will be compared—for example, words, numbers, ideas, events, concepts, persons, places, or things; 2) identifying the critical attributes or the most important characteristics of each of the items to be compared; 3) determining whether the attributes or characteristics are alike or different; and 4) summarizing or drawing conclusions (generalizing) about the overall findings.

The most challenging step of the four for learners who lack background knowledge about content will likely be Step 2: identifying the critical attributes of the various items to be compared. Figure 2.1 leads you and your students through the steps of identifying the critical attribute of just one thing. In order to compare, you will need to engage in this exercise for at least two and possibly more things, depending on your content and the organizer you select.

At the same time that learners are making comparisons about critical content, they must also be applying what they know about how the various organizers described in this technique work. Students need to know which of the similarities and differences they are generating from their comparison are important enough to be recorded and precisely where this information should be recorded on a given organizer. The more involved your students can be in every step, the more content knowledge they will take away from the experience. However, effectively implementing comparing using the more sophisticated graphic organizers in this technique must be a gradual process for you and possibly many of your students.

There are four graphic organizers that are uniquely suited to comparing two or more things: 1) Venn diagram, 2) double-bubble diagram, 3) comparison matrix, and 4) modified T-chart. You will find completed examples with classroom content illustrating each organizer in this section.
**Figure 2.1: Steps to Identifying the Critical Attributes of One Thing**

<table>
<thead>
<tr>
<th>Step</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Choose an important person, place, thing, or event from content being studied as your subject for identifying critical attributes.</td>
<td>List the attributes of the famous brass fanfare section of the musical composition “The William Tell Overture” by Rossini.</td>
</tr>
<tr>
<td>2. Break down the subject into its component parts or attributes and list them. These are called “nondefining” attributes.</td>
<td>Loud&lt;br&gt;Fast&lt;br&gt;Bright&lt;br&gt;Staccato</td>
</tr>
<tr>
<td>3. Generalize categories for each specific attribute. Give the category a name. These are called “defining” attributes.</td>
<td>Dynamics&lt;br&gt;Tempo&lt;br&gt;Timbre&lt;br&gt;Articulation</td>
</tr>
<tr>
<td>4. Use this list of attributes as a starting point for a comparison activity.</td>
<td>Compare the ending brass fanfare section of “The William Tell Overture” to the opening lyrical string introduction in the same composition. Use the categories (defining attributes) of dynamics, tempo, timbre, and articulation to describe the second passage. Summarize similarities and differences between the two.</td>
</tr>
</tbody>
</table>

**Venn Diagram**

A Venn diagram consists of two or more overlapping circles that can be used for specific, general, abstract, or concrete comparison activities. Figure 2.2 shows the versatility of the Venn diagram.

**Figure 2.2: When to Use a Venn Diagram**

<table>
<thead>
<tr>
<th>Purpose</th>
<th>When to Use a Venn Diagram</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific</td>
<td>When it’s important for students to know specific facts or important examples</td>
<td>Factors of 18 and 24</td>
</tr>
<tr>
<td>General</td>
<td>When students need to be able to compare generalized ideas drawn from specifics</td>
<td>Healthy eating habits and weight loss techniques</td>
</tr>
<tr>
<td>Abstract</td>
<td>When students are ready to compare and contrast abstract ideas they have gleaned through deeper learning</td>
<td>Literary themes of different authors</td>
</tr>
<tr>
<td>Concrete</td>
<td>When manipulating physical objects is feasible, appropriate, and helpful to students</td>
<td>Sorting shapes according to different attributes</td>
</tr>
</tbody>
</table>
Each circle of a Venn diagram is labeled with one of the items being compared. The differences are written or drawn in the outer circles and the similarities are put into the area of intersection, showing that those items belong to both or all circles. Figure 2.3 displays a comparison of the factors of 18 and 24.

**Figure 2.3: Venn Diagram Comparing Factors of 18 and 24**

What I notice about the similarities and differences:

Common Factors of 18 and 24 are 1, 2, 3, and 6

6 is the Greatest Common Factor

To add complexity to the task, add another circle to create a triple Venn diagram. To construct this diagram, students must determine which items
are members of one, two, or all three circle sets. Figure 2.4 displays a triple comparison of the factors of 18, 21, and 24.

Figure 2.4: Triple Venn Diagram Comparing Factors of 18, 21, and 24

Double-Bubble Diagrams
The double-bubble diagram (Hyerle, 1996) is a variation of the Venn diagram and is recommended for use with students who may need scaffolding before transitioning to a traditional Venn. Items being compared are written or drawn in the two shaded circles known as anchor bubbles. The distinguishing characteristics (critical attributes) of each topic are written to the sides of each anchor bubble, one item per bubble. Students can add bubbles if they have more ideas. The features in common are written in the middle bubbles—one similar attribute per bubble. Color coding the bubbles can aid students
Examining Similarities & Differences

further. Figure 2.5 illustrates a double-bubble diagram comparing stringed instruments.

**Figure 2.5: Double-Bubble Diagram Comparing Stringed Instruments**

Adapted from Hyerle (1996).

**Comparison Matrix**

A comparison matrix is a third type of graphic organizer for comparing two or more people, things, events, or concepts in terms of certain characteristics. The comparison matrix is a grid with the names of things being compared written across the top—one per column—and the characteristics written along the side, one at the start of each row. Students record data in each cell of the grid. The final column can be used to generalize the similarities and differences among the concepts in that row. A three-by-two or a three-by-three matrix is a reasonable task to have students complete. However, take care not to make this task too complex by comparing too many things or having too many criteria. Figure 2.6 displays a completed example of a comparison matrix for cultures in a state.

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### Figure 2.6: Comparison Matrix of Cultures in a State

<table>
<thead>
<tr>
<th>Traditions and Beliefs</th>
<th>Amish</th>
<th>Appalachian</th>
<th>Latino</th>
<th>Important Similarities and Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Simple, plain life</td>
<td></td>
<td>Love of nature</td>
<td></td>
<td>Same: Strong belief in God</td>
</tr>
<tr>
<td>Teach children their way of life</td>
<td></td>
<td>Strong belief in God</td>
<td></td>
<td>Teach their beliefs to children</td>
</tr>
<tr>
<td>No modern things like electricity, cars</td>
<td></td>
<td>Handmade things</td>
<td></td>
<td>Different: Type of religion</td>
</tr>
<tr>
<td>Strong belief in God and hard work</td>
<td></td>
<td>Storytelling</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Independent and happy to live where they do</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Help each other but don't like change in their land</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Roman Catholic</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Keep the Spanish language at home</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Fiestas</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Work is important</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td></td>
<td>Strong ties</td>
<td></td>
<td>Same: Strong family ties</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Loyalty to family</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Women are important and sometimes act as head of family</td>
<td></td>
<td>Different: Head of family</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Close knit</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Includes relatives</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respect for older people</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Help others in family in need</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Modified T-Chart**

The fourth and final graphic organizer described in this technique is a modified T-chart that can be used to compare two or more things. It includes the same information as a Venn diagram, with the addition of a dedicated space in which students can write new insights gained from their analyses of similarities and differences. There are spaces for both likenesses and differences. Defined attributes may be listed inside the arrows connecting the two boxes. This chart gives you some flexibility in how much structure to provide your students. You can complete parts of this organizer ahead of time and assign students to do the rest, or leave it open ended and have students select the
items to be compared as well as attributes to be used. An example of a completed organizer comparing the Greek and Roman empires is displayed in Figure 2.7.

Figure 2.7: Modified T-Chart Comparing the Greek and Roman Empires

<table>
<thead>
<tr>
<th>Rome</th>
<th>And Different . . .</th>
<th>Greece</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. extended citizenship to those who were conquered</td>
<td>Government</td>
<td>1. kept strict barriers to extending citizenship</td>
</tr>
<tr>
<td>2. terrain was a north-south plain that left them open to invading tribes</td>
<td>Geography</td>
<td>2. terrain was mountainous and isolated city-states from one another</td>
</tr>
<tr>
<td>3. moved to trade early on so not so dependent on own farming</td>
<td>Agriculture</td>
<td>3. based on wheat, olive oil, wine</td>
</tr>
</tbody>
</table>

And So, in Summary . . .

Common Mistakes

There are many ways teachers can confuse students when combining instruction for comparing two or more things while also becoming skilled in choosing and using specific organizers for examining similarities and differences:
Instructional Technique 2

- The teacher fails to choose an appropriate organizer for the critical content to be mastered.
- The teacher fails to provide enough direct teaching and modeling of the content, leaving students with only a partial version of the critical content.
- The teacher fails to provide enough direct teaching and modeling of how to execute various organizers.
- The teacher talks too much and fails to allow students opportunities for processing with classmates.
- The teacher fails to include the final step of either generalizing or summarizing their findings about similarities and differences.
- The teacher fails to place enough emphasis on important aspects of the content, thereby depriving students of opportunities to deepen their content knowledge.

Examples of Comparing Using Graphic Organizers in the Classroom
Identifying similarities and differences using organizers requires solid content knowledge and advance planning. Following are examples and non-examples from elementary and secondary classrooms.

**Elementary Example of Comparing Using Graphic Organizers**
This elementary example illustrates a teacher using a comparison matrix (shown earlier in Figure 2.6) in a third-grade social studies class. The specific learning target being addressed is describing similarities and differences between cultural groups and activities in Ohio and during the past and present (Ohio Social Studies Standards: HIS.3.4a). The students have read various resource books and watched videos to learn critical content about the Amish, Latino, and Appalachian cultures. In the course of their introduction to this new knowledge, students identify two common attribute categories present in each culture: 1) traditions and 2) beliefs and family. Here is how the teacher introduced the matrix to her students:
Class, we’ve been learning many facts about three different cultural groups that live in our state. Today we are going to organize some of the facts we have been learning into a graphic organizer called a comparison matrix. The teacher reviews the meaning of the term comparing for students and explains that a matrix is an arrangement of things that are connected. She displays a copy of the blank matrix containing the labels. You are going to compare two kinds of facts (facts about traditions and beliefs and facts about the structure of their families) for three different cultural groups (Amish, Latino, and Appalachian). Remember we are comparing, so your job is to look for facts about the three groups that are either similar or different.

The teacher passes out a copy of the organizer to each group and walks around the classroom visiting them to monitor the accuracy of the students’ information. Once the groups complete their organizers, she asks them to come up with some concluding statements about each criterion.

**Elementary Nonexample of Comparing Using Graphic Organizers**

In the nonexample elementary classroom, the teacher is teaching to the same standard. He decides to have his students compare the same three cultures—Amish, Appalachian, and Latino—but thinks it is important for students to consider as many different aspects as possible about all of the cultures. He gives them a matrix with three columns and six rows, one each for traditions and beliefs, family, food, art and music, and language. He soon realizes that the assignment is too complex for his students. He later takes his lesson back to the drawing board to scale it down so that his students can process the content more readily.

**Comparing Using Graphic Organizers in the Secondary Classroom**

The secondary example/nonexample is based on the following specific learning target: *learning how large-scale empires arose in the Mediterranean basin between 500 BCE and 300 CE* (National Center for History in the Schools: History Standards: World History Era 3: Standard #3).
**Secondary Example of Comparing Using Graphic Organizers**

A middle school teacher chooses a modified T-chart graphic organizer to help his students gain deeper knowledge about the learning target. Most of the class has mastered the foundational knowledge of the unit and is ready to expand this knowledge. The teacher introduces the lesson this way:

*Class, you have done excellent work during our studies of the Greek and Roman empires. Today we are going to think about these two empires in a comparative way, to figure out how these empires are alike and how they are different. Your first task is to choose the characteristics you will use to compare the two empires.*

For some students who need scaffolding, the teacher chooses the criteria. Students work in pairs to complete the task. Because the modified T-chart includes a summary section, the teacher immediately knows if his students achieve the desired effect of using the organizer. Figure 2.7, shown earlier following the description of a modified T-chart, is an example of the work of one group of students.

**Secondary Nonexample of Graphic Organizers**

The nonexample teacher also teaches middle school students, and her learning target is identical to the one selected by the example teacher. However, she decides to use a Venn diagram and fails to provide her students with instruction and modeling about how to complete the assignment. Her students write their similarities and differences in random places on the diagram, and she quickly realizes that she has failed to give students a sufficient model or explanation in advance. She has made some faulty assumptions about the skills of her students and was further tripped up by choosing an organizer that was ill suited for the task.
Determining If Students Can Compare Using Graphic Organizers

Take time to monitor whether the majority of students are accurately recording similarities and differences as they use graphic organizers. If students are given the task of identifying criteria by which to compare the topics, make sure they have selected important criteria so that they will gain a deeper understanding of which content is most important. Here are some ways effective teachers monitor their students’ understanding:

- Have students work in pairs or small groups to complete their graphic organizers. Closely monitor students’ efforts, checking responses and information recorded, prompting and guiding with questions to encourage rigor.

- Explain how the organizer represents their understanding of the similarities and differences in content.

- Write summary statements about what is most important to remember about the similarities and differences in various aspects of content.

- After students have examined similarities and differences using graphic organizers, have them switch papers. Pose questions to the whole class, allowing students to locate the answers on their peers’ papers.

- Give students different graphic organizers to choose from once they have had opportunities to practice different types.

Table 2.1 contains a student proficiency scale for making comparisons between two or more things using graphic organizers. Use and adapt as needed to determine how your students are progressing from taking their first steps to the desired result.
Table 2.1: Student Proficiency Scale for Making Comparisons Using Graphic Organizers

<table>
<thead>
<tr>
<th>Emerging</th>
<th>Fundamental</th>
<th>Desired Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are able to compare some concepts using a simple graphic organizer.</td>
<td>Students accurately use a graphic organizer to compare content concepts. Students can choose appropriately which graphic organizer to use. Students can state which critical content they are comparing.</td>
<td>Students are able to choose or create a graphic organizer to make comparisons. Students accurately use a graphic organizer to show how two topics compare. Students can explain how the organizer helps them better understand the critical content. Students initiate the use of organizers on their own.</td>
</tr>
<tr>
<td>Students can state what the comparison is about.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Scaffold and Extend Instruction to Meet Students’ Needs

As you become more skilled at choosing and using graphic organizers to help students deeply understand similarities and differences of critical content topics, you will more readily identify students who need adaptations from your original instruction. Some students need support or scaffolding, while others are ready to be challenged through extensions. Following are some suggestions that might help you zero in on the precise needs of your students.

Scaffolding

- Provide students with critical prerequisites in an organizer so they can realize progress in completing the organizer.
- Provide the elements and attributes that students should use in their comparison matrices and provide a review of each element or attribute.
- Use the attribute chart shown in Figure 2.1 to give students frequent practice in listing the critical attributes of various content-related topics.
Examining Similarities & Differences

**Extending**

- Release responsibility to students for selecting the elements and attributes of their content-related comparisons.

- Encourage students to construct a triple Venn diagram to make the task more complex.

- Give students more unusual comparisons to make within the content.