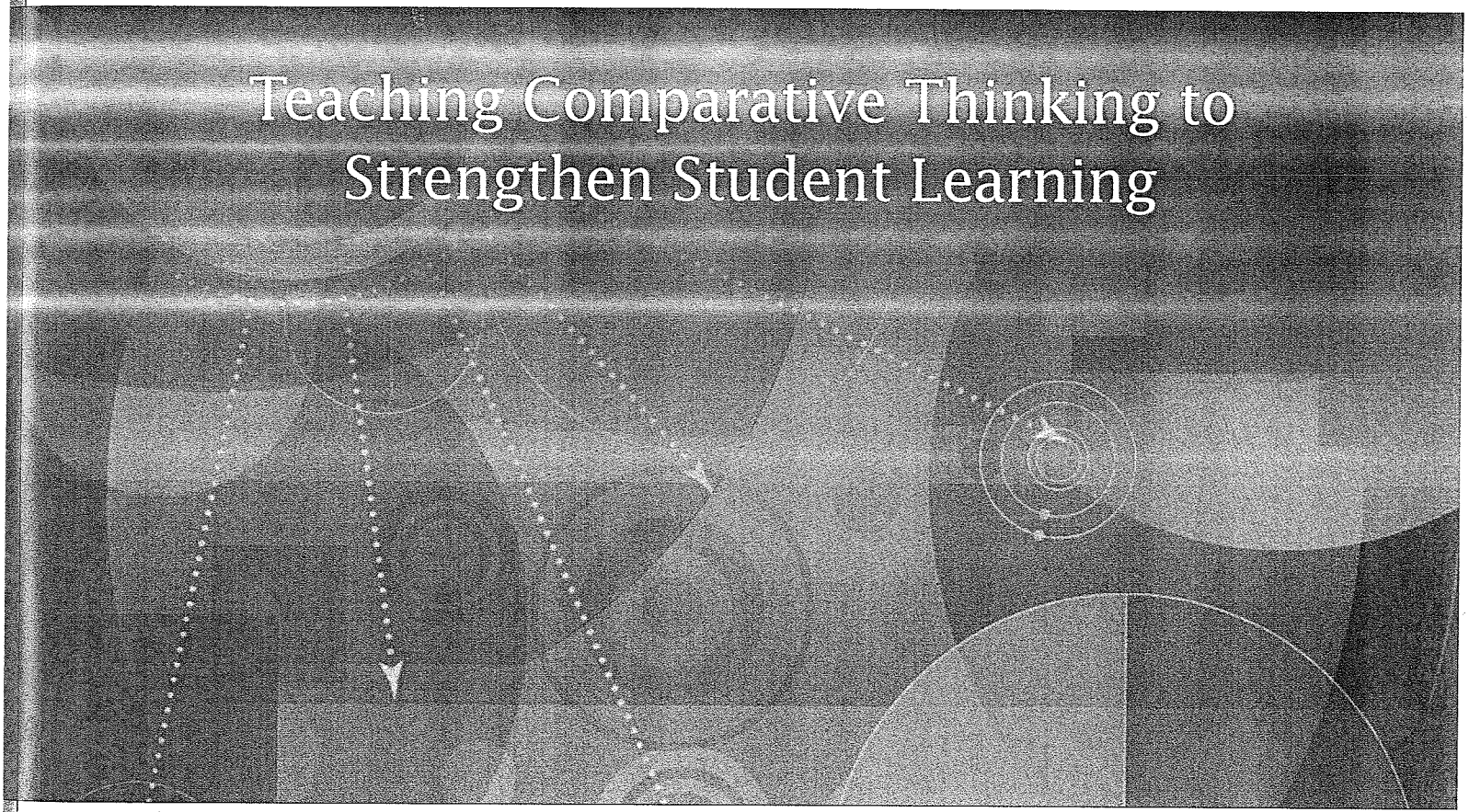
A STRATEGIC TEACHER PLC GUIDE

Compare & Contrast

Teaching Comparative Thinking to Strengthen Student Learning



Harvey F. Silver

A GUIDE FOR PROFESSIONAL LEARNING COMMUNITIES

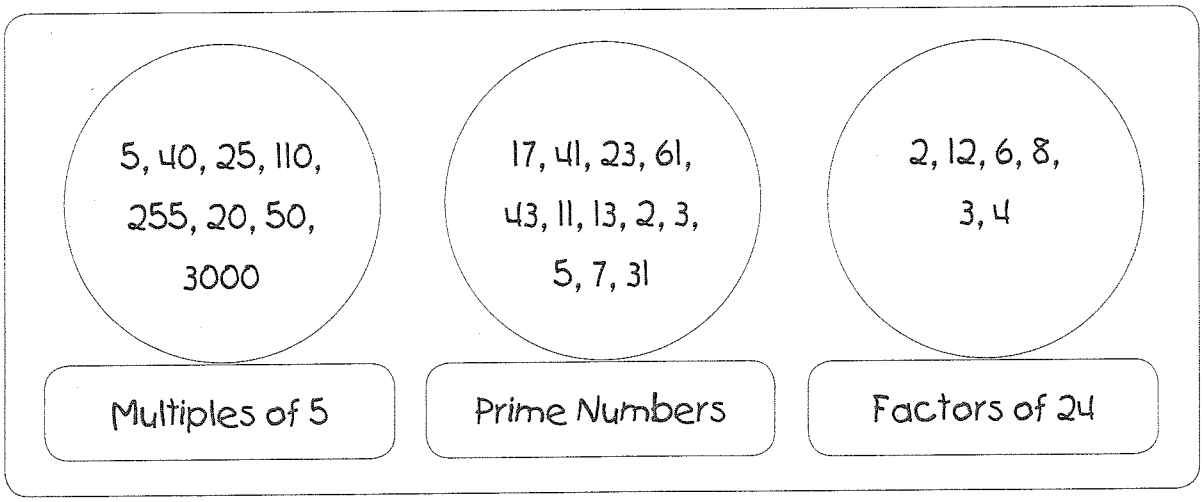
Appendix A: The Power of Similarities and Differences

Compare & Contrast is one strategy in a family of four that Robert Marzano and his team refer to as "Identifying Similarities and Differences" (Marzano, 2007; Marzano et al., 2001). Their research has shown that strategies that engage students in comparative thinking consistently yield high levels of student achievement. Here, we provide a brief overview of the three additional comparative strategies. Each of these strategies is covered in depth in *The Strategic Teacher: Selecting the Right Research-Based Strategy for Every Lesson* (Silver, Strong, & Perini, 2007).

Inductive Learning

Inductive Learning requires students to examine a set of examples or a bank of data and develop a classification system. Figure A.1 is an example from a 6th grade mathematics class.

Figure A.1 Student's Classification System for a Set of Numbers



Encourage students to group items in ways that are meaningful to them. Make sure you emphasize the importance of giving each group a descriptive label. Collect and record students' ideas on the board. Students can use their groups to make predictions about the learning to come: as they encounter evidence that confirms or refutes their predictions, they record it. Lessons incorporating Inductive Learning typically culminate with a task that asks students to apply their classification system in a meaningful way.

Decision Making

Decision Making is the most personal form of comparison, inviting students into the content to examine alternatives and use their own values to make and justify a decision. Begin by identifying a set of concepts or ideas that you would like your students to consider in greater depth. For example, U.S. history teacher Jessica Alvarez wants her freshmen to analyze the presidencies of the 19th century and decide who they think was the best president of that century.

Next, work with your students to identify three to five criteria to use to evaluate the alternatives. Here are the four criteria that Jessica developed with her students:

- Major achievements
- Major crises
- Popularity
- Effect on future presidents

Jessica's students collect specific details that they use to evaluate each alternative according to their criteria (see Figure A.2). They then assign a value to each cell in their organizer using a 1–5 scale. Students add up these numerical values to make their decisions.

Figure A.2 **Student's Partial Decision-Making Matrix**

	Major Achievements	*Major Crises*
Lincoln	*Commander in Chief during the Civil War* *Signed Emancipation Proclamation* 5	*Attack on Fort Sumter* *Secession of Southern States* *Civil War* 5
Grant	*Wrote a lucid and insightful autobiography* *General of Union Army* 3	*Teapot Dome Scandal* *Reconstruction of Former Confederacy* 2

Metaphorical Expression

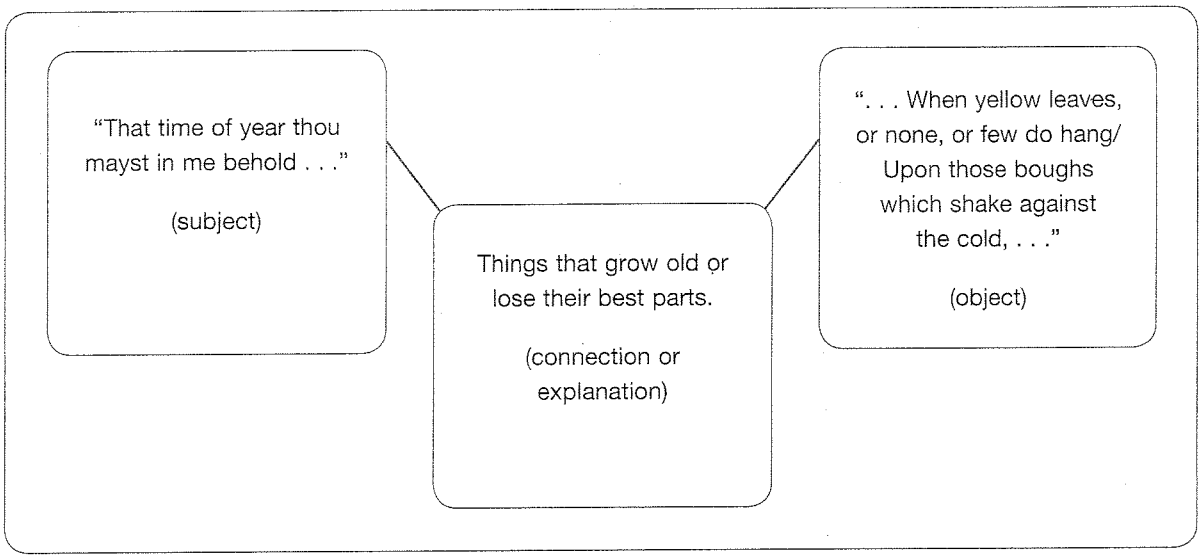
Metaphors engage students in deep, critical thinking by asking them to make creative comparisons and explain connections between dissimilar ideas or items.

Metaphors and similes are sneaky; they look like pairs when they are really triplets. Take the opening of Shakespeare's Sonnet 73, for example:

> *That time of year thou mayst in me behold*
> *When yellow leaves, or none, or few, do hang*
> *Upon those boughs which shake against the cold, . . .*

When you first look at the metaphor, it looks like a pair: me (the speaker) and a tree in winter (the object). However, as Figure A.3 shows, there is an invisible element to this equation.

Figure A.3 Sonnet 73, Metaphorical Connection

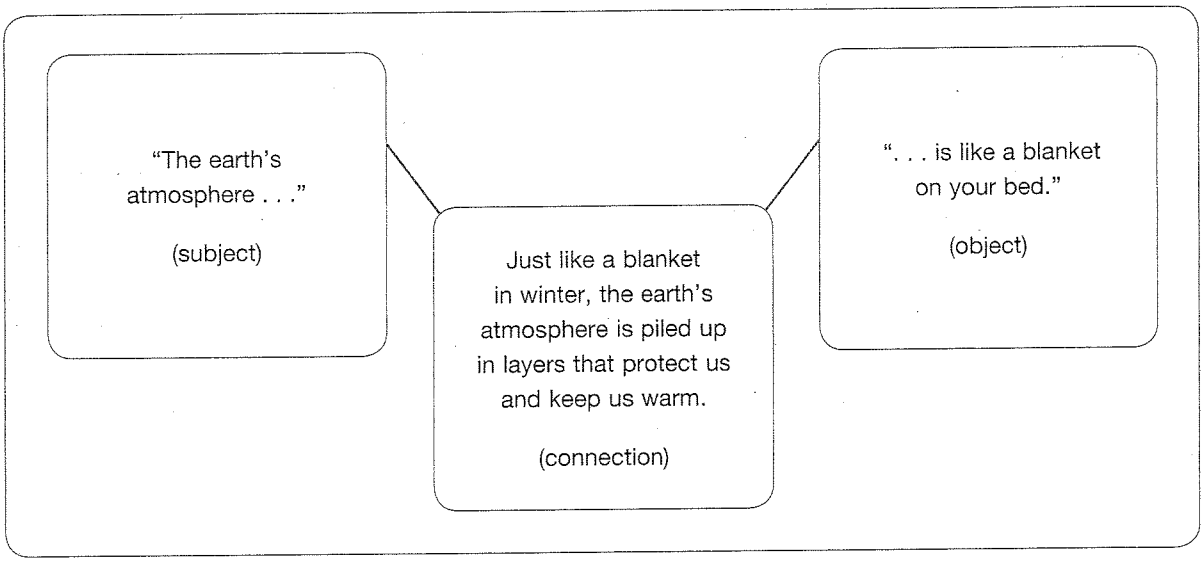


Sometimes when we are teaching students, we provide them with all three parts to help them understand a key concept (see Figure A.4).

Once students are familiar with the use of metaphors, you can begin to use them to help students review or gain new insight into your content. Begin by creating a metaphorical question based on a unit you are planning. For example, a unit on the American Revolution may contain a metaphorical question like "How was the American Revolution like an earthquake?"

Provide students with a visual organizer and ask them to jot down whatever they know about the subject and object. (You may want to provide students with a short reading or other source of information.) Then ask your students to work through as many connections as possible. Wrap up the lesson by asking students to create a product that demonstrates or explains the key concepts.

Figure A.4 Metaphorical Connection in Earth Science



Similarities and Differences: Sample Lessons

The matrix in Figure A.5 includes a variety of lesson starters—questions and activities in four content areas—using Compare & Contrast, Inductive Learning, Decision Making, and Metaphorical Expression.

Figure A.5 Matrix of Lesson Starters

	Compare & Contrast	Inductive Learning	Decision Making	Metaphorical Expression
Science	How are reptiles and amphibians alike and different? Describe the similarities and differences of each by creating a Venn Diagram.	Review the list of 18 animals. First, group the animals according to biome. Next, group the animals according to class. What do you notice?	Study this list of 10 major scientific discoveries of the 20th century. Rate each discovery using a 1–10 scale (1 being most important). Write a short persuasive essay explaining why your first choice is the most important scientific discovery of the 20th century.	How is a snowflake like a fingerprint?

Figure A.5 (*continued*)

	Compare & Contrast	Inductive Learning	Decision Making	Metaphorical Expression
Mathematics	How are fractions and decimals alike and different? Use a Top Hat Organizer to collect information.	Look at the page of polygons. There are 15 shapes in total. Place the shapes into at least four groups. You must use each shape once, but you can put the same shape into different groups. Make sure you give each group a descriptive label.	Read the specifications for these three MP3 players. Analyze and rate each MP3 player according to cost of player, storage capacity, and screen size. Determine which MP3 player is the best buy for you.	Is a dartboard a good way to think about measures of central tendency? Why or why not?
Social Studies	Review the map of the 13 Original Colonies. Organize the colonies into Southern, Mid-Atlantic, and New England. Then analyze each group of colonies using the criteria on your Matrix Organizer.	Below are a list of important people, places, and concepts to help you study Ancient Egypt. Organize the 24 terms into at least five groups. Give each group a descriptive label and connect related groups.	Read over the Bill of Rights. Develop three criteria for analyzing each of the 10 amendments. Rate each amendment on a scale of 1–10, with 1 being the most important to you. If you could have only three amendments, what would they be?	Why were European allies of the Soviet Union called "satellites" during the Cold War?
English/ Language Arts	Think about the book you just read, *The House on Mango Street.* Use a Top Hat Organizer to compare and contrast the neighborhood in the story to your neighborhood.	Now that you've finished *Bridge to Terabithia,* you should be able to classify the list of characters into groups. Make sure you give each group a good label. This will help you explain the story to a friend.	Review the list of major characters in *Romeo and Juliet.* Rate each character according to his or her involvement in the final outcome of the story. Write a critical editorial for the "Verona News" explaining who you think is most at fault.	How is a literary theme like an iceberg?