CONCEPT LEARNING: EXAMPLES & NON-EXAMPLES
COMPARE & CONTRAST

Declarative Knowledge Level
First Impressions: Providing students with examples and non-examples and giving them the opportunity to create their own is an important concept acquisition strategy. Consider how to use examples and non-examples to scaffold from previous knowledge into new knowledge.
An integral strategy to use for content learning is the example/non-example strategy. An example is an illustration of a concept that contains the key attributes associated with that concept, whereas a non-example is similar to the concept but varies in one or more attributes from the actual concept.

The purpose of using examples and non-examples is to help students learn about concepts through generalizations. From examples, we make more accurate generalizations. Non-examples help prevent over-generalizations.

Objects:

Students will be able to...

1. Define examples and non-examples.

2. Identify the purpose of using examples and non-examples.

3. Identify characteristics of effective examples and non-examples.

4. Recognize effective uses of examples and non-examples.

5. Articulate the benefits of using examples and non-examples in the classroom.
Tips for using Examples and Non-Examples

1. Use examples whose qualities (those that are not related to the concept) are varied.

2. Start with simple examples and get more complex.

3. Display examples and non-examples in one sitting or all at once.

4. Use paired examples and non-examples that are related.

5. Allow students to come up with their own examples and non-examples.

6. Give students access to a diverse and large amount of examples and non-examples.

(Malamed, 2011)

Real Life Examples

There are a number of ways to use examples and non-examples both in and out of the classroom. They can be formal or informal, teacher-generated or student-generated, and simple or complex.

To the left is a list of rules by Connie Malamed (2011) that can be used to guide instructors in how to design examples and non-examples as an instructional strategy. Malamed goes into greater detail about each guideline and uses the concept of comics to illustrate what she means on this webpage.
**Invisible Cats**

This resource invites the viewer to look at a series of pictures of “Invisible Cats” on one link without providing much further instruction. Then, another link takes the viewer to a picture of a cat with a caption that summarizes what the viewer likely learned. The implication is that there was learning occurring in terms of generalizing what counts as an invisible cat picture might without any explicit instruction. This could be a humorous way to introduce learning by example to your students.

**Polynomials**

For more complex concepts, like polynomials and polynomial equations in math, more explanation is required. This website gives some examples that are polynomials and others that only look like polynomials. They all contain brief explanations as to what key attributes keep them in or out of that category.

**Paraphrasing vs. Plagiarizing**

Secondary teachers in all disciplines often find that students have a hard time with the difference between using information from a source and plagiarizing information from a source; so using examples and non-examples, along with explanations, could help those students.

**Democracy**

Having the students decide on what qualifies as an example and what does not allows students to practice evaluating. This resource gives a definition of democracy followed by a series of descriptions of ancient civilizations. Students are tasked with identifying the descriptions as either examples or non-examples of the concept of democracy, and then explaining why. Not only do they have to classify the descriptions, they also have to analyze why they would be classified one way or the other.

**Frayer Vocabulary Model**

The Frayer Model is an oft-used tool for vocabulary development that takes students a step further by having the students provide the examples and non-examples themselves. First, they identify the concept and its definition and characteristics, then they use that information to determine what to use as an example and what to use as a non-example.
According to Melinda Sota (2013), “Understanding a concept is not the same as recalling a definition.” Exposing students to both examples and non-examples provides the opportunity to compare and contrast the two, which hones their understanding of what attributes do and do not apply to the concept they are learning.

This teaches students to apply what they learn from the teacher-provided examples to situations students may encounter on their own. Examples and non-examples are a key piece of concept learning that encourage understanding, applying, analyzing, and evaluating.
Resources


First Impressions:
Comparing and contrasting is an integral part of the learning process and a key to conceptual understanding. It provides a foundation for students to examine concepts in familiar terms and aids in comprehension and retention.
Compare and contrast is a strategy used to analyze the similarities and differences between ideas, objects, people, and events as well as to expose the relationships between the items being examined. The primary purpose of this instructional strategy is to aid students in developing critical thinking skills and provide a means to organize new information.

The compare and contrast strategy enables students to evaluate and synthesize information as they examine the relationship between concepts that they are exploring. “Compare and Contrast belongs to the category of instructional strategies that Marzano, Pickering, & Pollock (2001) found to have the greatest impact on student achievement across grade levels and content areas: “Identifying Similarities and Differences.”

This is important because comparing is a basic skill in thinking and understanding.

Objectives:
Students will be able to . . .

1. Define comparing and contrasting.

2. Identify the purpose of using the compare and contrast strategy.

3. Recognize effective examples comparing and contrasting in content instruction and identify the most common use.

4. Discuss the benefits of using the compare and contrast strategy in classroom instruction.
Comparing and Contrasting strategies exist in several forms, and are often found embedded into other instructional strategies because they are the foundation for higher-order thinking skills.

**Real Life Examples**

Examples of utilizing compare and contrast
Pages 89-92, in the link above, provide four different examples of utilizing compare/contrast in chart form: PMI chart, Decision Making Model, Venn Diagram, and KWL chart.

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**Tips**

The following are some questions for students to consider when making comparisons:

1. How are two or more things or ideas the same?
2. How are they different?
3. Are the similarities of X and Y more important than their differences?
4. Do we learn something about X when we compare it to Y?
5. What is more difficult to understand about X when we compare it to Y?
6. Might a different comparison yield a different perspective?
**Compare and Contrast according to Marzano, Pickering and Pollock**  This link provides the basis of Marzano, Pickering, and Pollock’s beliefs that students benefit most from four means of comparing and contrasting: Compare, Classify, Creating Metaphors, Creating Analogies and provides examples of various charts and prompts that fall into one of those four categories.

**Utilizing a T-Chart and Tables** There are several lesson plans and preview documents attached to this article, with an emphasis on reading skills and pulling textual information out to examine.

**Using a Comparison-Contrast Chart** A blank comparison chart that can be used for multiple curriculums.

**10 suggestions for how to use the compare/contrast strategy** Ideas for teachers of all subjects on how to best utilize the compare and contrast strategy.

**Cinderella Folk Tales: A Comparison** In this lesson plan found at Edsitement, students are challenged to compare the various fairy tales of Cinderella worldwide using Matrix charts.

**Cubing for deeper analysis** How to examine concepts using cubes.

**Comparing and Contrasting:** Numerous ideas and activities for how to incorporate compare/contrast into lesson plans across the curriculum.
Comparison allows us to increase memory by the simple fact that two linked ideas last longer than any two ideas left alone. It aids in establishing patterns and relationships, making it easier to navigate large chunks of information in an organized manner. Comparison enables students to use prior knowledge to help make sense of new ideas and can assist in predicting future outcomes relating to the information being analyzed.

Benefits

Comparing and contrasting is a good way to help your students clarify ideas and sharpen their analytical skills. By focusing students on analyzing pairs of ideas, students’ ability to remember key content is strengthened. Student comprehension is improved by highlighting important details, making abstract ideas more concrete, and reducing the confusion between related concepts.
Help in making connections and creation of new and unique ideas can be facilitated by this strategy, and finally it helps to make abstract thought visible and easily-overlooked content unavoidable when you have to examine it in order to draw these comparisons or contrasts out.

In their book, *Classroom Instruction that Works*, Marzano, Pickering, and Pollock draw four generalizations from the research in this area:

- Presenting students with explicit guidance in identifying similarities and differences enhances students' understanding of and ability to use knowledge.
- Asking students to identify similarities and differences independently enhances their understanding of and ability to use knowledge.
- Representing similarities and differences in graphic or symbolic form enhances students' understanding of and ability to use knowledge.
- Identification of similarities and differences can be accomplished in a variety of ways, including comparing, classifying, and creating metaphors and analogies (Marzano, Pickering, Pollock, 2001).

Comparing and contrasting is the foundation of questioning. It leads to higher-order questions and enhances critical thinking skills. Harvey Silver proposes that there are five core instructional goals that can, and should, be achieved through the use of the compare and contrast strategy in his book, *Comparing and Contrasting*, and shows several examples of incorporating this strategy into lessons.

### What Can Compare & Contrast Do for You and Your Students?

Compare & Contrast helps teachers achieve five distinct instructional goals:

<table>
<thead>
<tr>
<th>GOAL</th>
<th>Objective</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1:</td>
<td>Strengthen Students’ Memories</td>
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<tr>
<td>#2:</td>
<td>Develop Higher-Order Thinking Skills</td>
</tr>
<tr>
<td>#3:</td>
<td>Increase Student Comprehension</td>
</tr>
<tr>
<td>#4:</td>
<td>Enhance Students’ Writing in the Content Areas</td>
</tr>
<tr>
<td>#5:</td>
<td>Develop Students’ Habits of Mind</td>
</tr>
</tbody>
</table>

Silver (2010)
Resources


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