The Concept Comparison Routine

The Content Enhancement Series

2015
California State University, Fullerton
Adrian Jung, Ph.D.
Content Enhancement

A way of teaching an academically diverse group of students in which:

– Both group and individual needs are valued and met;

– The integrity of the content is maintained;
Content Enhancement

A way of teaching an academically diverse group of students in which:

– Critical features of the content are selected and transformed in a manner that promotes student learning; and

– Instruction is carried out in a partnership with students.
Guidebooks in the
Content Enhancement Series

• Routines for planning and leading learning
  – Course Organizer Routine
  – Unit Organizer Routine
  – Lesson Organizer Routine
Guidebooks in the Content Enhancement Series

- Routines for exploring text, topics, and details
  - Clarifying Routine
  - Framing Routine
  - Survey Routine
  - The ORDER Routine
Guidebooks in the Content Enhancement Series

• Routines for teaching concepts
  – Concept Anchoring Routine
  – Concept Comparison Routine
  – Concept Mastery Routine
Guidebooks in the Content Enhancement Series

• Routines for enhancing performance
  – Quality Assignment Routine
  – Question Exploration Routine
  – Recall Enhancement Routine
  – Vocabulary LINCing Routine
Understanding the Challenge of Diversity

• Introduction of difficult but important concepts requires creating connections to background knowledge.

• Increased student diversity results in varying levels and types of background knowledge.
Understanding the Challenge of Diversity

- Students need new ways of thinking about critical concepts and relationships between concepts.
- Teachers can take advantage of student diversity by comparing concepts from different perspectives.
The Concept Comparison Routine helps students to:

- Focus on key concepts.
- Focus attention on similarities and differences between known concepts.
- Understand the usefulness of higher-order categories in understanding and learning.
Responding to the Challenge

The Concept Comparison Routine helps students to:

• Develop ways to explain and summarize similarities and differences between concepts.

• Remember a way to compare and contrast known concepts.
The Concept Comparison Routine helps students to:

- Interact with the teacher and other students to explore and understand relationships between concepts.
- Record information for later studying and use.
The Comparison Table
Teaching Device

Is a visual device that:

• is used under teacher guidance;

• focuses careful attention on more than one concept;

• identifies relevant features of each concept;
Is a visual device that:

- prompts analysis of similarities and differences of relevant features;
- helps students summarize relationships between concepts;
- helps identify higher-order categories related to the relevant concepts;
The Comparison Table
Teaching Device

Is a visual device that:

- is designed to enhance student...
  - understanding of concept relationships,
  - remembering of ways to think about new, difficult information,
  - responses to evaluation tasks and activities, and
  - belief in the value of the content.
**VERTEBRATES**

**Birds**
- Most fly
- Warm-blooded
- Live worldwide
- Feathers
- Backbone
- Young hatch from eggs

**Mammals**
- Most travel by foot
- Warm-blooded
- Live worldwide
- Hair
- Backbone
- Most young born live

**Explore how many heart chambers birds and mammals have, and enter the information on the table.**

**How body temperature is regulated.**
- Where they live.
- How their bodies are supported.

**How they travel.**
- What covers their bodies.
- How young are born.

**Summary**

Birds and mammals are two vertebrates that are alike with regard to how their body temperature is regulated, where they live and how their bodies are supported. They are different in terms of what covers their bodies and how they travel from one place to another. They are also different in terms of how their young are born.
### Comparison Table

#### Concept: Vertebrates

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Birds</th>
<th>Mammals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Most fly</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Warm-blooded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Live worldwide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Feathers</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Backbone</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Young hatch from eggs</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Extensions

- Explore how many heart chambers birds and mammals have and enter the information on the table.

### Communication Strategy

- **Communicate Targeted Concepts**
- Obtain the Overall Concepts
- Make lists of Known Characteristics
- Pin down Like Characteristics
- Assemble Like Categories
- Record Unlike Characteristics
- Identify Unlike Categories
- Nail Down a Summary
- Go Beyond the Basics

**1. The Known Concepts**

This represents the names of the Known Concepts to be explored in the lesson.
2. The Overall Concept

Represents the name of the larger group within which the targeted concepts fit.
## Comparison Table

### Overall Concept

**VERTEBRATES**

#### Concept

- **Concept**
  - **Birds**
  - **Mammals**

#### Characteristics

- **Mammals**
  - Most travel by foot
  - Warm-blooded
  - Live worldwide
  - Hair
  - Backbone
  - Most young born live

- **Birds**
  - Most fly
  - Warm-blooded
  - Live worldwide
  - Feathers
  - Backbone
  - Young hatch from eggs

#### Extensions

- Explore how many heart chambers birds and mammals have, and enter

### 3. Characteristics of Concepts

Describe the characteristics or distinguishing traits of the concepts to be explored
4. Like Characteristics

Those qualities or attributes that the targeted concepts have in common.

- **Warm-blooded**
- **Live worldwide**
- **Backbone**
5. Like Categories

The larger groups or categories to which the Like Characteristics belong

COMPARISON

- Communicate Targeted Concepts
- Obtain the Overall Concepts
- Make lists of Known Characteristics
- Pin down Like Characteristics
- Assemble Like Categories
- Record Unlike Characteristics
- Identify Unlike Categories
- Nail Down a Summary
- Go Beyond the Basics

Extensions

Explore how many heart chambers birds and mammals have, and enter the information on the table.

Like Characteristics

- Warm-blooded
- Live worldwide
- Backbone

Like Categories

- VERTEBRATES
  - Mammals
  - Birds

- Most fly
- Most travel by foot
- Most young born live
- Young hatch from eggs
- Warm-blooded
- Live worldwide
- Backbone

How body temperature is regulated.
Where they live.
How their bodies are supported.
Birds and mammals are two vertebrates that are alike with regard to how their body temperature is regulated, where they live and how their bodies are supported. They are different in terms of what covers their bodies and how they travel from one place to another. They are also different in terms of how their young are born.
Birds and mammals are two vertebrates that are alike with regard to how their body temperature is regulated, where they live and how their bodies are supported. They are different in terms of what covers their bodies and how they travel from one place to another. They are also different in terms of how their young are born.
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8. Summary

An understanding of the similarities and differences between concepts that can either:

- explain how the concepts are alike or different in terms of named categories,

- explain how the concepts are alike or different in terms of both characteristics and categories, or

- raise questions or list insights gained from the comparison.
## Comparison Table

<table>
<thead>
<tr>
<th>Concept 1</th>
<th>Concept 2</th>
<th>Overall Concept</th>
</tr>
</thead>
<tbody>
<tr>
<td>Begin with a targeted concept.</td>
<td>Obtain the overall concept.</td>
<td>Communicate targeted concepts.</td>
</tr>
<tr>
<td>Make a list of known characteristics.</td>
<td>Pin down like characteristics.</td>
<td>Obtain the overall concepts.</td>
</tr>
<tr>
<td>Assemble like categories.</td>
<td>Record unlike characteristics.</td>
<td>Make lists of known characteristics.</td>
</tr>
<tr>
<td>Identify unlike categories.</td>
<td>Nail down a summary.</td>
<td>Pin down like characteristics.</td>
</tr>
<tr>
<td>Go beyond the basics.</td>
<td></td>
<td>Record unlike characteristics.</td>
</tr>
</tbody>
</table>

### 9. Extensions

An assignment on key information related to the targeted concepts that prompts further exploration or study.

- Explore how many heart chambers birds and mammals have, and enter the information on the table.
The Comparing Linking Steps

Guide the teacher to:

• present the Comparison Table effectively;
• involve students in constructing and using the Comparison Table;
• investigate the relationship between concepts; and
• focus student attention on learning.
The COMPARING Linking Steps

- Communicate Targeted Concepts.
- Obtain the Overall Concept.
- Make Lists of Known Characteristics.
- Pin Down Like Characteristics.
- Assemble Like Categories.
- Record Unlike Characteristics.
- Identify Unlike Categories.
- Nail Down a Summary.
- Go Beyond the Basics.
The Linking Steps

These steps guide the teacher during the in-class, interactive presentation of the Comparison Table.

The teacher prepared a draft of the Comparison Table in advance of the lesson, but the final version is co-constructed with the students during class.

These steps are cued by the acronym COMPARING.
Try to make a statement like:

“By understanding the economic conditions in the North in 1860 and the economic conditions in the South in 1860 (concepts being compared), we can understand the economic causes of sectionalism in the U.S. (Overall Concept).”

“Fish and mammals (concepts being compared) are two kinds of vertebrates (Overall Concept).”
Checking the Names of the Overall & Targeted Concepts

Try to make a statement like:

“Comedy and tragedy (concepts being compared) are two forms of drama (Overall Concept).”
## COMPARISON TABLE

### OVERALL CONCEPT: WAYS TO DO WORK

<table>
<thead>
<tr>
<th>Concept</th>
<th>Cooperate</th>
<th>Compete</th>
</tr>
</thead>
</table>

### CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cooperate</th>
<th>Compete</th>
</tr>
</thead>
<tbody>
<tr>
<td>People working together</td>
<td>People or groups working against one another</td>
</tr>
<tr>
<td>More than 1 person</td>
<td>More than 1 person</td>
</tr>
<tr>
<td>Works shared by all members of the group</td>
<td>Work shared only within competing groups</td>
</tr>
<tr>
<td>Rewards are shared</td>
<td>Rewards are given to the best</td>
</tr>
<tr>
<td>All members concerned about one another</td>
<td>Concerned only about yourself or your team</td>
</tr>
</tbody>
</table>

### LIKE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cooperate</th>
<th>Compete</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than 1 person</td>
<td>More than 1 person</td>
</tr>
</tbody>
</table>

### UNLIKE CHARACTERISTICS

<table>
<thead>
<tr>
<th>Cooperate</th>
<th>Compete</th>
</tr>
</thead>
<tbody>
<tr>
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</tr>
</tbody>
</table>

### SUMMARY

Cooperation and competition are both ways to do work. Cooperation and competition are similar in the number of people involved—there's always more than one person. Cooperation and competition are different in how people work together, how work is shared, who gets the rewards, and about whom the people are concerned (themselves or their teammates).
## Multiple-Concept Comparison Table, p. 1

### Steps 1-3 of the Concept Comparison Routine

<table>
<thead>
<tr>
<th>Steps 1: communication Targeted Concepts</th>
<th>Steps 2: Obtain the Overall Concept</th>
<th>Steps 3: Make lists of Known Characteristics</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Concept</th>
<th>Concept</th>
<th>Concept</th>
<th>Concept</th>
<th>Concept</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Characteristics</th>
<th>Characteristics</th>
<th>Characteristics</th>
<th>Characteristics</th>
</tr>
</thead>
</table>

© Overall Concept
### Steps 4 - 9 of the Concept Comparison Routine

Steps 4: Pin down Like Characteristics  
Steps 5: Assemble Like Categories  
Steps 6: Record Unlike Characteristics  
Steps 7: Identify Unlike Categories  
Steps 8: Nail down a Summary  
Steps 9: Go beyond the Basics
<table>
<thead>
<tr>
<th>Concept</th>
<th>Characteristics</th>
<th>Concept</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birds</td>
<td>Most fly</td>
<td>Mammals</td>
<td>Most travel by foot</td>
</tr>
<tr>
<td></td>
<td>Warm-blooded</td>
<td></td>
<td>Warm-blooded</td>
</tr>
<tr>
<td></td>
<td>Live worldwide</td>
<td></td>
<td>Live worldwide</td>
</tr>
<tr>
<td></td>
<td>Feathers</td>
<td></td>
<td>Hair</td>
</tr>
<tr>
<td></td>
<td>Backbone</td>
<td></td>
<td>Backbone</td>
</tr>
<tr>
<td></td>
<td>Young hatch from eggs</td>
<td></td>
<td>Most young born live</td>
</tr>
</tbody>
</table>

**Like Characteristics**
- Warm-blooded
- Live worldwide
- Backbone

**Unlike Characteristics**
- Most fly
- Feathers
- Young hatch from eggs

**Like Categories**
- How body temperature is regulated.
- Where they live.
- How their bodies are supported.

**Unlike Categories**
- How they travel.
- What covers their bodies.
- How young are born.

**Summary**

Birds and mammals are two vertebrates that are alike with regard to how their body temperature is regulated, where they live and how their bodies are supported. They are different in terms of what covers their bodies and how they travel from one place to another. They are also different in terms of how their young are born.
## COMPARISON TABLE

<table>
<thead>
<tr>
<th>Concept</th>
<th>Economic conditions in the North in 1860</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic causes of sectionalism in the U.S.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Concept</th>
<th>Economic conditions in the South in 1860</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic causes of sectionalism in the U.S.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good ports</td>
<td>Good ports</td>
</tr>
<tr>
<td>Good natural resources</td>
<td>Good natural resources</td>
</tr>
<tr>
<td>Immigrants in labor force</td>
<td>Slaves in labor force</td>
</tr>
<tr>
<td>Profit from industries</td>
<td>Profit from growing cotton</td>
</tr>
<tr>
<td>Good land transportation</td>
<td>Poor land transportation</td>
</tr>
<tr>
<td>Good credit with other countries</td>
<td>Good credit with other countries</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Similarities</th>
<th>Similarities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good ports</td>
<td>Good natural resources</td>
</tr>
<tr>
<td>Good natural resources</td>
<td>Profit from growing cotton</td>
</tr>
<tr>
<td>Good credit with other countries</td>
<td>Poor land transportation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Differences</th>
<th>Differences</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immigrants in labor force</td>
<td>Slaves in labor force</td>
</tr>
<tr>
<td>Profit from industries</td>
<td>Profit from growing cotton</td>
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<tr>
<td>Good land transportation</td>
<td>Poor land transportation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Summary</th>
<th>Summary</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sectionalism in the U.S. was partially caused by economic conditions in the North and South in 1860. Although the North and South both had good natural resources, ports, and credit, their primary sources of labor and profits were different, as was the quality of their land transportation. Thus, these three differences probably contributed to sectionalism.</td>
<td></td>
</tr>
</tbody>
</table>
COMPARISON TABLE

1. CONCEPT
   Cooperation

2. CONCEPT
   Competition

3. CHARACTERISTICS
   People working together
   More than 1 person
   Works shared by all members of the group
   Rewards are shared
   All members concerned about one another

3. CHARACTERISTICS
   People or groups working against one another
   More than 1 person
   Work shared only within competing groups
   Rewards are given to the best
   Concerned only about yourself or your team

4. LIKE CHARACTERISTICS
   More than 1 person

4. LIKE CHARACTERISTICS
   How many people are involved

5. UNLIKE CHARACTERISTICS
   People working together
   Works shared by all members of the group
   Rewards are shared
   All members concerned about one another

5. UNLIKE CHARACTERISTICS
   People or groups working against one another
   Work shared only within competing groups
   Rewards are given to the best
   Concerned only about yourself or your team

6. EXTENSIONS
   Consider how jobs are assigned within cooperative and competitive situations.
   Add information to your table as needed.

7. UNLIKE CATEGORIES
   How people work together
   How work is shared
   Who gets the rewards
   Who you're concerned about

8. SUMMARY
   Cooperation and competition are both ways to do work. Cooperation and competition are similar in the number of people involved—there's always more than one person. Cooperation and competition are different in how people work together, how work is shared, who gets the rewards, and about whom the people are concerned (themselves or their teammates).
# COMPARISON TABLE

### 1. OVERALL CONCEPT
- **NUMERALS**

### 2. CONCEPTS
- **Fraction**
- **Decimal**

### 3. CHARACTERISTICS
- **Fraction**
  - Represents parts of a whole
  - Written with one number on top of a line and another below the line (e.g., 4/10)
  - The number of parts contained in the whole is any number except zero

- **Decimal**
  - Represents parts of a whole
  - Written with one or more numbers and a decimal point (e.g., .4)
  - The number of parts contained in the whole is 10 or any multiple of 10

### 4. LIKE CHARACTERISTICS
- Represents parts of a whole

### 5. LIKE CATEGORIES
- **Use**

### 6. UNLIKE CHARACTERISTICS
- **Fraction**
  - Written with one number on top of a line and another below the line (e.g., 4/10)
  - The number of parts contained in the whole is any number except zero

- **Decimal**
  - Written with one or more numbers and a decimal point (e.g., .4)
  - The number of parts contained in the whole is 10 or any multiple of 10

### 7. UNLIKE CATEGORIES
- **Written form**
  - **Number of parts in the whole**

### SUMMARY
Two types of numerals are fractions and decimals. They are similar in their use (they are both used to represent parts of a whole). They are different in their written form and the number of parts contained in the whole.
COMPARISON TABLE

ELEMENTS OF LITERATURE

1. CONCEPT
   Plot

2. CHARACTERISTICS
   May be one or more in a work of literature
   Found in narrative literature
   Consists of a sequence of events
   Provides entertainment

3. UNIQUE CHARACTERISTICS
   Found in narrative literature
   Consists of a sequence of events
   Provides entertainment

4. CONCEPT
   Theme

5. CHARACTERISTICS
   May be one or more in a work of literature
   Found in a variety of literature
   Consists of a statement about meaning
   Delivers a message or idea

6. UNIQUE CHARACTERISTICS
   Found in a variety of literature
   Consists of a statement about meaning
   Delivers a message or idea

7. SUMMARY
   Two elements of literature are plot and theme. They are alike in terms of the number used in any piece of literature (there may be more than one plot or theme in a piece of literature). They are different in their location in literature, the form they take, and the function they serve.

EXTENSIONS
Investigate the element of plot in literature, and create a list of characteristics to be compared to poor and theme. Use this information to develop a Multiple-Concept Comparison Table.