HOW DO I GET MY STUDENTS TO READ THEIR TEXTBOOKS?

A Handbook of Useful Strategies for Student Engagement

Saddleback College Reading Department

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Remote Access and Resources
This handbook can also be found online on the Reading Department home page at: [http://www.saddleback.edu/la/rl/index.html](http://www.saddleback.edu/la/rl/index.html)
Introduction

"Try again. Fail again. Fail better." Samuel Beckett

In 2009, the Saddleback Reading Department compiled the results of a Basic Skills Initiative (BSI) faculty survey that attempted to identify the most significant teaching and learning issues on campus. Faculty members were asked to identify topics that would be most relevant to them in future teaching and learning workshops. Of the 73 respondents, the following three topics were identified as those in which faculty would like the most assistance:

1. Preparing students to write for their assignments, 52.1%
2. Methods for encouraging critical thinking, 49.3%
3. Teaching students to read course textbooks, 41.1%

On one hand, it may come as no surprise that reading, writing, and thinking continue to be identified as basic skills. They are, after all, fundamental to the learning process. However, as educators in the community college classroom, we have come to expect a certain aptitude and flexibility among our students in using these basic skills. This is why alternate programs, and in some cases entire departments, have been developed to assist those students who come to our campus still struggling in these basic areas. Unfortunately, more students come to our classrooms every semester wholly unprepared to perform at the academic level many of us have traditionally experienced, thereby dramatically changing not only our expectations as educators but what we are able to accomplish in our individual content areas in a given term.

As one of the survey respondents sagely noted, “Marginal student academic performance is a daily classroom reality, and I do not view it as a problem. It is the nature of the beast.” This is precisely what researchers Valeri-Gold and Deming (2000) at Georgia State University concluded when they wrote that “many college
students lack the cognitive development to perform college-level reading and writing tasks” (p. 150). Does this mean we should happily accept less from our students semester after semester? Give up assigning our students reading and writing activities? Embrace technology and “edutainment” as thought guru and game designer Marc Prensky (2001) insists is our inevitable future role as educators?

The writers of this handbook answer a resounding “No” to all these questions. And, even better, we offer sound research and strategies to be used by faculty across the curriculum to encourage the students in your classrooms to become better interpreters and end-users of their college textbooks. By focusing on improving your students’ use of their content area texts, we hope to likewise encourage improvements in these other important basic skills: writing and thinking.

In her research on motivating novice students to read their textbooks, Tracey E. Ryan, Ph.D., explained that the reason many students complain of “getting lost” when reading their college textbooks is the result of not just poor comprehension, but poor textbook reading skills (Ryan, 2006, p. 136). According to Ryan, “many researchers have suggested that teaching students how to effectively read the textbook is an important goal in the college setting.” We could not agree more. As the sage survey respondent urged, we should begin to accept the deficits our students show up with in our classrooms, not as points of contention, but rather as where we must begin. Author Jonah Lehrer reminds us in his most recent book, How We Decide, of the neural reality of education that we, as educators, may tend to overlook: “Expertise is simply the wisdom that emerges from cellular error” (Lehrer, 2010, p. 51). In other words, says Lehrer, mistakes (and deficits) aren’t things to be discouraged,” rather they should be carefully “cultivated and investigated.” So, once in a while we are granted a pass in using a cliché: “Practice does make perfect.” This handbook has been designed, therefore, to make your textbook practices and the textbook practices of your students, maybe not perfect, but exceedingly better.
Reading and Learning in Stages

- By approaching reading in stages, instructors and students begin to understand reading as a process, which is good news for the brain. Processes involve steps, and steps imply a careful and gradual acquisition of knowledge, which, according to the latest research on thinking and study strategies, will remain in the “neural suitcase” much longer. (New York Times.com)

- Reading researchers have determined that good readers are active readers. Active readers have developed habits or strategies that they use before they read, while they are reading, and upon completion of their reading. (Duke & Pearson)

- Get your students “ready” to read! Before students begin a reading assignment, find out what they already know. Inquiry is a natural tendency. Students not only reveal their interest by means of questioning, but their questioning promotes new knowledge. (Manzo, Manzo, & Estes, 2001, p. 73)

- All reading should be considered rereading, and in this way, we should encourage our students to be more than just active in their reading habits. We should encourage them to be aggressive. (Hall & Birkerts)

- “Reading and comprehension require establishing relationships between concepts, drawing inferences, activating prior knowledge, and synthesizing main ideas.” (Carr, 2010, p. 129)

- Current research in neuroscience reveals that the key to memory consolidation (or learning) is attentiveness. The requirements necessary for the persistence of memory are almost identical to what reading researchers have also discovered about the reading process: New information must be thoroughly and deeply processed; and the new information must be attended to, and meaningfully and systematically associated with established knowledge. (Carr, 2010, p. 193)

- Poor readers want to remember everything. But retention works better by the gradual accumulation of knowledge, like filling a bathtub by thimbles full of water. (Carr, 2010, p. 125)
# Elements of the Reading Process – A Helpful Table

<table>
<thead>
<tr>
<th>Skills and Concepts</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>The Reading Process</strong></td>
<td>The Reading Process includes three basic steps. Each step has a set of activities/strategies. The three steps include: previewing; reading actively; and post-reading (or organizing).</td>
</tr>
</tbody>
</table>
| **Preparing to Read (Before)** | Step One and its strategies:  
1. Concentrate  
2. Preview the text by reviewing headings, subheadings, text structures, illustrations  
3. Access prior knowledge/experience  
4. Ask preparing to read questions  
5. Make predictions  
6. Establish a purpose for reading |
| **Reading Actively (During)** | Step Two and its strategies:  
1. Visualize what you are reading.  
2. Relate what you are reading to what you already know about this topic  
3. Begin to answer the questions/predictions you made in step one.  
4. Monitor your comprehension. Be aware of whether you understand the material  
5. Correct gaps in understanding/vocabulary  
6. Annotate or mark the text to improve concentration |
| **Post-reading (After)** | Step Three and its strategies:  
1. Self-test by writing notes, creating an outline/summary/graphic organizer  
2. Connect the new material to personal experience and background knowledge (Text-to-self)*  
3. Connect the new material to other written material(s) previously read (Text-to-text)*  
4. Connect the new material to bigger issues, events, or social concerns (Text-to-world)* |
| **Reader’s Questions** | Actively asking questions and making observations are important parts of the reading process. There are four types of reader’s questions:  
1. **Preparing to read questions**: What do I think this passage will be about; what do I already know about this topic; what questions do I expect to be answered? (The five Ws or journalist’s questions)  
2. **Checking comprehension questions**: Do I understand? Do I need to reread or read ahead? Were my earliest questions answered?  
3. **Making connection questions**: How does this fit in with what I already know? Is this what I expected? How do I need to change my predictions?  
4. Critical thinking questions: Do I agree with everything I am reading? If not, what is the nature of my disagreement? Am I willing to change my point of view? |
## Anticipation Guide

Anticipation Guides are an excellent way to activate students’ thoughts and opinions about a topic. These guides also help students to adopt a critical stance toward a topic, weighing their preconceptions against the author’s ideas.

The following steps apply to the construction of an anticipation guide in any content area.

1. Determine the key ideas in a text selection.
2. Create 3 to 5 statements reflecting your students’ pre-reading beliefs about a course topic that may challenge/modify the established beliefs.
3. Arrange the statements on a sheet of paper, overhead, or the board. Have students agree/disagree with each statement on an individual basis.
4. (Optional). Engage students in a pre-reading discussion highlighting their current justification for responding positively or negatively to each statement.
5. Have students read the text and then revisit the statements after reading the text to see whether they still agree or disagree with the statements.

### Sample Anticipation Guide: “Language, Culture, Diversity and the Reading Process”

<table>
<thead>
<tr>
<th>Agree</th>
<th>Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>1. Knowledge of a student’s culture is not important in teaching subject matter.</td>
<td></td>
</tr>
<tr>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>2. Programs designed for second language learners help them make gains in subject matter comprehension.</td>
<td></td>
</tr>
<tr>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>3. Comprehending text material is a creative, constructive process.</td>
<td></td>
</tr>
<tr>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>4. Reading and writing are unrelated cognitive processes.</td>
<td></td>
</tr>
<tr>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>5. Whole class discussion discourages wide student participation.</td>
<td></td>
</tr>
</tbody>
</table>

### Sample Anticipation Guide: Romeo and Juliet

Read each of the following statements, and note whether you agree or disagree with each one by circling or underlining the response that matches your decision.

<table>
<thead>
<tr>
<th>Before Reading</th>
<th>Statement</th>
<th>After Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agree</td>
<td>Disagree</td>
<td>It is acceptable to disobey your parents.</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree</td>
<td>It is always wrong to commit suicide.</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree</td>
<td>It is right to seek revenge if someone treats you inappropriately.</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree</td>
<td>It is appropriate to marry without the blessing of your parents.</td>
</tr>
<tr>
<td>Agree</td>
<td>Disagree</td>
<td>If you accidentally kill someone, you should be punished.</td>
</tr>
</tbody>
</table>

Comments:

*From Tools for Teaching Content Literacy (Allen, 2004)*
Survey, Question, Read, Recite, Review (SQ3R)

SQ3R is a comprehension strategy that helps students think about the text they are reading while they're reading. Often categorized as a study strategy, SQ3R helps students "get it" the first time they read a text by teaching students how to read and think like an effective reader.

This strategy includes the following five steps (Robinson, 1946):

- **Survey:** Students review the text to gain initial meaning from the headings, bolded text, graphics and illustrations.
- **Question:** Students begin to generate questions about their reading from previewing it.
- **Read:** As students read, they need to look for answers to the questions they formulated during their preview of the text. These questions, based on the structure of the text, help focus students' reading.
- **Recite:** As students move through the text they should recite or rehearse the answers to their questions and make notes about their answer for later studying.
- **Review:** After reading, students should review the text to answer lingering questions and recite the questions they previously answered.

Benefits

Do you have students who get to the end of reading their textbook selection and have no idea what they've read? These students can benefit from using the SQ3R because it requires them to activate their thinking and review their understanding throughout their reading. It also dissuades students from waiting and then cramming for tests because the five steps require them to review information and create notes during their initial reading. Their notes from the initial reading become their study guides. ([See Cornell Notes Handout.](#))

Create and use the strategy

As with its sister strategy Question-Answer Relationship (QAR), SQ3R requires the teacher to model.

1. Explain to students that effective readers do many things while reading, including surveying, questioning, reading, reciting and reviewing.
2. Choose a content area passage to read and model the five steps.
3. Be sure to explain what you're doing and why you're doing it as you proceed.
4. After your modeling session, invite students to independently read a selection and practice applying the SQ3R steps. This could be completed as an in-class or take-home assignment.
5. Then ask students to review their notes and reflect on the process. Were they surprised by how much they remembered by using the SQ3R method?
6. Students may not be "sold" on this strategy the first time they try it. Not all readings will be worth the time it takes to complete the SQ3R steps, so help students to understand not just how to apply it, but when to apply it.

(Adlit.org, March, 7, 2011)
Jigsaw

Post-Reading Strategy

Jigsaw is a well-known cooperative learning activity and is very useful for post-reading recall and recitation.

1. Divide a reading assignment into four numbered sections.

2. Set up four-student groups. Within the groups, have students number off, one to four, and distribute the four-part reading assignment.

3. Give students time to read their section silently.

4. Have all students who read the first section of the reading (one student from each group) meet in one corner of the room; all who read the second section meet in another corner; all who read the third section meet in another corner; and all who read the fourth section meet in another corner.

In these groups, they are to check their recall and understanding of what they read, so they will be prepared to share it with their home group members. Depending on the nature of the reading selection, you may wish to have a worksheet for students to complete in these four section groups.

5. Students return to four-member home groups and share, in order, the important information from their sections of the assigned reading.

This method is especially useful for bridging to further analyses or applications in another cooperative group structure as students are already established in groups, and each group member is an “expert” on some portion of the reading assignment.

(Manzo, Manzo & Estes, 2001, p. 139)
Textbook Inventories
Whole-Book Preview

- For many instructors, the textbook is a key content provider for a course. Often the textbook serves as the main tool for instruction and learning.

- Student learning relies on the ability of a student to be able to independently read and process more and more material from the text.

- You can help students familiarize themselves with your textbook (organization, content, special features, and benefits). Many instructors have found that when their students understand how a textbook is organized, they can more easily access information when they need it.

- Scaffold students toward reading success by encouraging students in the beginning of the semester to become familiar with their textbook, activate relevant prior knowledge, locate tools within the book, and anticipate content to be covered in subsequent lessons (Garber-Miller 2007).

- A textbook preview is a simple procedure that should be introduced early in the term – preferably during the first two weeks – and will go a long way toward making students feel that they can use the textbook effectively.

- A textbook preview can be done in class or as an out-of-class assignment, individually or in pairs or groups. Depending on the complexity of the text and the degree of familiarity desired, the preview can be relatively brief (10 minutes) or extensive (30 minutes or more).

- A sample text preview is included in this manual which you can use “as is” or customize to your particular textbook. Additional samples can be found on the online copy of this manual.
Textbook Preview

Good readers preview texts before beginning to read them. A preview takes less than 15 minutes, and the result is that the reader has "the big picture" concerning the content and organization of the book.

1. Title of textbook _______________________________________________________
2. Author(s) _____________________________________________________________
3. Background of author(s) ______________________________________________
   ___________________________________________________________________
   ___________________________________________________________________

4. Date of publication _________________________

5. Skim the PREFACE or INTRODUCTION of this book. What are the major sections discussed there?
   ___________________________________________________________________
   ___________________________________________________________________

6. Look at the Table of Contents. How many units, parts, or major sections does this textbook contain? ______
   How many chapters are in this book? ________________

7. Write the titles of two chapters that sound like they include material which is familiar to you.
   ___________________________________________________________________
   ___________________________________________________________________

8. Write titles of two chapters that sound like new material.
   ___________________________________________________________________
   ___________________________________________________________________

9. What is the organization within most of the chapters? Compare two chapters and list the parts/sections that are in both chapters.
   ___________________________________________________________________
   ___________________________________________________________________
Check the aids included:

- subheadings
- chapter summaries
- chapter introductions
- different types of print
- questions/exercises
- headings
- other:

10. What study aids are included in the chapters?

- charts, graphs, maps
- illustrations, pictures
- bibliographies or references
- author’s notes
- supplementary readings
- footnotes

11. Describe the page layout:

- print too small
- crowded page
- well organized
- not enough white space
- comfortable to read

12. Appendices. If the book has appendices, list some of them:


14. Does the book have an index? If so, read it to find three (3) topics you are familiar with and list them under KNOWN. Then find three (3) you are least familiar with, and list them under UNKNOWN.

15. Difficulty. Read 2 pages. How difficult will this book be for you to read?

- very difficult
- difficult
- a little difficult
- not difficult
Memory and the Brain

- In 1892 William James said that “the art of remembering is the art of thinking.”

- The brain needs time to process new information (without additional interference or distractions), then connect this new information with existing knowledge in long-term memory storage. This process is called consolidation. Sleep and brain “down time” is essential for this consolidation process. (Bonnema, 2009)

- What determines what we remember and what we forget? The key to memory consolidation is attentiveness. Storing explicit memories and forming connections between them requires strong mental concentration, amplified by repetition or by intense intellectual or emotional engagement. (Carr)

- Research has shown us that the more times an experience is repeated, the longer the memory of the experience lasts. Repetition encourages consolidation. However, this repetition is most effective if approached by using the principles of time-spaced learning. Spaced learning, studying for several short periods of time, with intervals of relaxation (“down-time”), is more effective and results in better learning and recall than does one long study session.

- A time-spaced learning handout, which can be copied and distributed to your students, is included in this manual.

- The strategy of summarizing and note-taking supports the natural plasticity and pruning functions of the brain as it selects information to both cross-code into memory, and to personalize into meaningful chunks of content for deeper understanding (Bonnema, 2009, p. 18).

- Homework and practice are clear examples that support the memory enhancing strategy of rehearsal, while the strategy of cooperative learning naturally increases episodic intensity in learning new information (Bonnema, 2009, p. 18)

- Finally, using cues, questions, and advance organizers helps students develop greater interest by encouraging deeper connections to presented information, and supports the tendency of the brain to organize knowledge for long-term storage and recall (Bonnema, 2009, p. 19).

- Woolfolk (1998; as quoted in Banikowski & Mehring) offered six practical recommendations for enhancing long-term retention and recall in the classroom.

  o Make sure you have students’ attention.
  o Help students separate essential from nonessential details and focus on the most important.
  o Help students connect new information with what they know already.
  o Provide for repetition and review of information
  o Present material in a clear, organized way.
  o Focus on meaning, not memorization (p. 17).
Theory of Time-Spaced Learning

The most effective method for retaining any new knowledge and saving time in the process is to study material in a series of short study sessions interspersed with periods of other work or interests. This method is called **TIME-SPACED LEARNING**. You can use this method for studying, writing, practicing speeches, or accomplishing any mental task.

Suppose you have to memorize some factual data. Study the material intently for 15 to 20 minutes, put it aside, and then devote your attention to some other task or diversion for a short period of time (no more than five minutes). Pick up your study material again and concentrate on it for another 15 to 20 minutes. Again divert your attention to other tasks. Continue this plan of time-spaced learning until you know the material thoroughly.

If you had taken two hours of study at one time, you would have found that your results would not have been as successful.

**Principles of Instruction**

- Study material in a series of short study periods instead of cramming material into one long, tiresome period.
- Frequent, short study periods help one to remove misconceptions. As one reviews, he/she modifies or corrects his/her thinking on the subject.
- Review familiar material first, and then proceed with the unfamiliar material.
- Ideas have to sink into our subconscious minds and become set. His idea of consolidation is sometimes called the “Jell-O” concept. Jell-O when it’s first made is a liquid. As time passes, the liquid cools; when it is placed in the refrigerator to cool even more, it then solidifies into Jell-O. Ideas have to rest in the subconscious mind for a period of time before they become fixed in our minds.
- Too many ideas at one time will confuse you. Psychologists claim that the human brain can successfully handle six to seven ideas during one time period. You will have good retention if enough repetition is used.

**Benefits of Time-spaced Learning**

- Greater retention and recall capability.
- Less fatigue while learning.
- Working in cooperation with your brain rather than against it.
Vocabulary

“One forgets words as one forgets names. One’s vocabulary needs constant fertilizing or it will die.” Evelyn Wright

- Many college students do not come prepared with vocabularies or strategies that will assist them in successfully meeting the demand of their varied classes (Simpson & Randal, 2000).
- Students have an increased difficulty in “communication to represent important ideas and concepts” (Simpson & Randall, p. 43).
- Students need to make personal connections, automaticity, finding meaningful use of words, and word consciousness (Graves & Watts-Taffe, 2002).
- Word consciousness is students being aware of new words in their surroundings whether it is in school, home, or social arenas.
- Learners need to take ownership of their vocabulary and use it correctly without thinking.
- Students need to investigate different kinds of vocabulary that are seen in their content area texts.
- Instructors need to take an interest in words and word meaning and model that behavior and enthusiasm each and every class period.
- Encouraging students to use sophisticated vocabulary in students’ writing gives the content area words importance.
- Engaging students to connect words in meaningful oral activities will enhance their vocabulary knowledge (Francis & Simpson, 2003).
- When vocabulary and strategy instruction is embedded into the content, students’ depth of understanding of content area increases.
- Teaching the meaning of vocabulary words prior to reading the text is an effective component of traditional vocabulary instruction (Beck & McKeown, 1985).
- Instructional strategies that bring new vocabulary into a student’s existing conceptual framework are effective in teaching vocabulary meaning and conceptual understanding (Nagy, Herman, & Anderson, 1985).
Suggestions for Teaching Students
Content Area Words and Concepts

Instructional practices for teaching students specific content-related words and concepts include helping them to:

• Create mental or visual images associated with a technical vocabulary word so as to facilitate recall of its meaning. This is often referred to as the keyword technique.

• Link new vocabulary with background knowledge by having students brainstorm and describe what they already know about the topic being studied.

• Focus on the semantic relationships of new and familiar words and concepts through activities such as semantic mapping, semantic feature analysis, and categorization.

• Restate dictionary definitions of new words in their own words and to make up sentences using the new words.

• Use synonyms, antonyms, and dictionary definitions to understand the meaning of specialized and technical vocabulary.

• Analyze the structure of new words (affixes, inflections, compound words, and contractions) to determine their meanings.

• Use contextual analysis activities that require students to use semantic and syntactic features of sentences to determine the meaning of new words. Such activities include a cloze procedure, rereading sentences without using the new word, and reading sentences that appear before and after the sentence with the new word.

• Use a combination of strategies, such as dictionary definitions and contextual analysis (each one used alone has not proven to be effective instruction).

• Maintain personal content-related word lists or word banks.

• Work cooperatively to figure out meanings of new words through contextual analysis.
Tools and Activities for Vocabulary Acquisition

How do I begin?

- Begin with a topic area that is challenging for many of your students; begin to embed effective strategies for developing vocabulary and applying comprehension strategies to this content.

- Point out how contextual analysis in students’ textbooks can be used for understanding.

Examples of context clues would include the following:

- definitions
- examples
- restatements
- graphic illustrations, such as charts, tables, figures, and diagrams
- syntactic and semantic clues found in the sentence structure and words that surround the unfamiliar word.

Examples that may be found in textbooks and can be pointed out to students:

- **Induction** refers to the process of reasoning from the known to unknown.
- Crickets, grasshoppers, and cockroaches, for example, are **Orthopterrans** and thrive in damp conditions.
- Many cultural systems are **dynamic**; they change with environment, innovations, and contact with other groups.

Below are some additional strategies you could share with your students for their own vocabulary study.

**Four Square Vocabulary** (Lenski, Wham, & Johns, 1999)

1. Draw a square with four quadrants on the chalkboard, or an overhead transparency, or a computer with an LCD panel.
2. In the top left quadrant, write a vocabulary word that you want students to learn.
3. Ask students to suggest words or phrases they personally associate with the vocabulary word. Write one of the personal associations suggested by students in the upper right-hand quadrant.
4. Write a brief definition of the vocabulary word in the lower left quadrant.
5. Next, ask students to suggest a word or a phrase that is the opposite of the vocabulary word.

Once you have modeled this strategy, students will be able to complete this activity on their own. Making a personal connection to the word helps students to retain the word in their long-term memory.
**Example**

<table>
<thead>
<tr>
<th>Vocabulary Word</th>
<th>Personal Association</th>
</tr>
</thead>
<tbody>
<tr>
<td>detente</td>
<td>French for relaxation</td>
</tr>
</tbody>
</table>

**Definition**
Decrease in tension between countries

**Opposite**
Strained relations

**Hint:** It is helpful to walk students through the thinking process you use to decode an unfamiliar word. If students are unable to come up with any personal associations for the word, you’ll need to skip to the definition and then backtrack to the personal connection. Some students may wish to draw a visual clue to help them remember the word.

**Word Association**

1. Take the first letter of each targeted word in the text.
2. Try to make a word or words out of the first letter of each word.

**Example**
If the student is trying to remember the five themes of geography:
- **Movement** = M
- **Region** = R
- **Location** = L
- **Interdependence** = I
- **Population** = P

“Mr. Lip” is the key to remembering!

**Word Map**
A word map is a visual representation of a definition. It displays different categories of knowledge:

(D. Applegate, CAL)
Organizing Information: Annotating, Note Taking, Mapping and Summary Writing

- The key to learning large amounts of information is to annotate by underlining and making margin notes, organize and condense the information by writing a separate set of notes, and most importantly, consistently review the information to facilitate learning and memory.

- When students create a written record (notes) of what they think is important from a reading, it is easier to find the information later. Also, by reviewing their notes, students enhance their capacity for remembering the details of the recorded information when needed (such as during a test).

- Research findings indicate that graphic organizers/maps can be effective tools to support comprehension for all students and to guide student writing (Kim, Vaughn, Wanzek & Wei, 2004).

- Graphic organizers become brainstorming devices that help students organize their ideas from a reading before they write a summary (Marzano, Pickering, & Pollock, 2001). The graphic organizer allows students to visually see how the details and main ideas are related.

- In academic writing, we often have students summarize passages, articles, or even entire books. Our hope is that students derive further information and understanding from outside sources. In a summary, a student is expected to use his/her own words to “… offer as accurately as possible the full sense of the original,” excluding minor details and condensing the main ideas into as few words as possible. (Columbia University Writing Center)

- Unfortunately, the papers we receive may not be the standard expected because students often don’t understand that a summary is not an analysis or evaluation. They may copy directly from the source rather than restate the information. Furthermore, students may inadvertently provide their own interpretation or reaction rather than accurately represent the writer’s points. (Columbia University Writing Center)

- Knowing how to write a summary is a beneficial tool in college because it checks a student's understanding of a course’s reading materials. Whether used as a study guide in preparing for exams, as part of a written assignment for condensing information presented in an assigned reading, relaying a personal experience or writing a journal entry, it is important for students to become proficient in writing a summary.

- Students in any content area often require explicit instruction to learn how to use strategies that support their comprehension during reading. Teaching students to summarize what they have read has been shown to lead to increased comprehension (Brown, 2002). Encourage comprehension and engagement with a text by having students begin with the previewing strategies as discussed in Reading and Learning in Stages.
# Methods of Organizing Textbook Information – A Helpful Table

<table>
<thead>
<tr>
<th>Textbook Organizing Method</th>
<th>How to?</th>
<th>Why?</th>
</tr>
</thead>
</table>
| Annotating                        | • System of notations – identify main idea, important details, key words in margin  
• Using marks to help organize the material visually – number and underline the details  
• Read entire passage first, then annotate | • Fast  
• Information all in one place  
• Textbook becomes a workbook |
| Note Taking – Cornell Method (2-6 Method) | • 2-inch margin on left – key words  
• 6-inch margin on right – details and summary sentences  
• Jot down brief sentence summaries of important information  
• Margin space on left to identify topics/definitions | • Working with pen and paper improves attention to material  
• Forces Concentration |
| Outlining                          | • Get an overview before you start  
• Use Roman numerals, indentations, letters, and numbers to show levels of importance | • Organizes information from books and lectures  
• Highlights main topics  
• Shows levels of importance and relationships among ideas |
| Mapping                            | • Visual system of condensing material to show relationships  
• Place topic/main idea in center, determine main ideas and significant details  
• Use lines to show relationships among main idea, major details and minor details  
• Maintains active reading and thinking | • Improves memory by grouping ideas and facts visually  
• Quick reference or overview of an article or chapter |
Annotating Textbooks: Marking, Underlining and Making Margin Notes

| WHAT? | Annotating is selectively underlining important information, and then writing margin notes in the textbook, essay, or article to explain what is important. |
| WHY? | The advantage of annotating, marking and underlining the textbook is that students will have an "on the spot" record of important information from the chapter. It encourages students to become engaged and think about the text material. |
| WHEN? | Essential study tool for studying, when preparing to write a summary, and helping you remember important information. |
| HOW? | The core of annotating is to underline only key words -- the words that support, prove, explain, or give examples of a major idea -- and then write a brief explanation of what was underlined in the margin of the textbook. A problem that many students have is highlighting too much information so that every detail looks important. |

Tips for Annotating a Text

1. Survey the reading selection to discover the contents and to discover how the information is organized. Form questions from the headings and subheadings.

2. Star (*) and highlight the main idea. After reading each section in the textbook (one subheading to the next subheading) star and underline key words or phrases in the main idea.

3. Write the main idea in the margin - not as a sentence but with key or summary words.

4. Underline selectively and for emphasis: underline those details that directly support, prove, explain, or give examples of the main idea. Note them by also marking numerically - 1 2 3.

5. Write key words in margin when you complete underlining a section. Use key words that will briefly explain the information you’ve underlined in that section.

6. Design your own system of symbols for underlining and writing in the margin. Use symbols that are easily remembered as to what they represent:
   - a double line for the main ideas;
   - a single line for the details
   - brackets [ ] for an important paragraph
   - an asterisk * for an important point to remember
   - numerals to show a listing of examples or details.
     1, 2, 3, 4, or a., b., c.
   - write ex. to point out examples
   - write def. in the margin to indicate a definition in the text
   - draw arrows to show connections between ideas from other sentences/paragraphs
   - question marks ??? for points that may be unclear (seek help for these questions)
   - circle key words that tell: who, what, where, why, when and how.

7. Write key words or phrases in the margin to explain ideas or thoughts about a section, to relate information from other sections or to summarize a section's information so that students remember what information was underlined.

8. Be alert to signal words that point out major details.
How to Take Textbook Notes Using Cornell Method (The 2-6 Method)

1. The key to this note-taking system is to draw a vertical line about 2 ½ inches from the left edge of the paper.
2. In the right-hand column, record the important supporting points or details of the lecture or reading.
3. In the left-hand column, record only key words or phrases that summarize the important supporting points from the right-hand column.
4. Strive to capture the general ideas of the section rather than nonessential details.
   a. Focus on the content or main words
   b. Don’t write everything down – only major points of emphasis in the reading
   c. Use abbreviations, numbers or letters to indicate sequence, stages, facts, etc.

Format for Note-taking:

<table>
<thead>
<tr>
<th>Key words/ideas/main points</th>
<th>Details/supporting points/answers</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 ½ inches</td>
<td>6 inches</td>
</tr>
</tbody>
</table>
# Mapping: A Graphic Organizer

An alternative to note-taking and outlining, mapping is an excellent way to gain experience in identifying major details and minor supporting details. This forces you to selectively search for the important points. By reorganizing the information you have read, you can clearly see the relationships between the details and the author’s main idea. Seeing these relations is a critical skill for effective studying, reading, and writing.

| WHAT? | A map is a graphic summary of reading material. Important information (major ideas, supporting details and conclusions) is organized to illustrate significance and relationships. |
| WHY? | "Knowledge has an internal connectedness, a meaningfulness, and for facts to be appreciated, understood and remembered, they must be fitted into that (a mapped) context." Harvard Center for Cognitive Studies |
| WHEN? | Mapping is an essential study tool. It can be used when organizing expository writing, preparing essay exam questions, and studying vocabulary as well as when organizing reading. |
| HOW? | • Determine the map’s starting point by identifying the main idea and placing it in a prominent position on single sheet of paper.  
• Identify the major and minor supporting details and connect them to the main idea in a design that reveals relationships.  
• Use drawings, colors and shapes that reflect a student’s personality and learning style. |

![Mapping Diagram](image-url)
What Students Should Know about Writing a Summary

Why write a summary? A summary forces a reader to think about the information that he has read and recorded in some manner (by annotating, outlining, mapping or Cornell Notes). Also, it assists comprehension as it forces the reader to condense information to its essential parts. A summary can be used as a study guide for exams, as part of a written assignment for condensing information presented in a required reading or recording the results of class demonstrations as a journal entry.

What is a summary? A summary is a short, concise method of stating the main idea and significant supporting details of a reading selection or textbook chapter. It can be thought of as a study outline that is connected by sentences rather than numbers, letters or indentations.

What a summary should include:
- The main idea of the selection
- The most necessary supporting details or explanations
- Only the information you have read
- Objective and factual information from the reading
- \( \frac{1}{4} \) the length of the original essay
- Your own words and the use of paraphrasing skills

What a summary should not include:
- Your opinion
- What you think the author should have said
- Copied material or a string of quotes from the selection

How to write a summary? A summary is a restatement of an author’s ideas, but not the reader’s comments or reaction to those ideas. Students can learn to remember and retell what the author said if they follow the author’s organization by continually asking themselves questions as they read: What is the writer’s main point? How does the writer prove or explain her ideas?

Asking the right questions will act as a guide for locating the right information to use in a summary. Additionally, if students annotate important sentences or sections that answer the questions, they’ll be able to clearly see the essential details.

Self-Directed Questions for Writing a Summary:
1. What is the topic of the article/essay?
2. What point is the author trying to establish about his topic? What is the author’s purpose?
3. What are some of the explanations (or proof) the author uses to support his main idea?

When written in sentences, the answers to these questions will become a summary in paragraph form.
Steps for Writing a Summary

**STEP 1. Title**: Put the title of the essay on the first line, centered. Skip a line between the title and the first sentence of your summary.

**STEP 2. First Sentence**: In the first sentence you must including the following information:

a. **Title** of the selection
b. **Author(s)** if available or the source (where the article came from)
c. **Thesis Statement** - main idea(s) of the selection. What is the author trying to tell you about the topic?

**Sample Opening Sentence:**

A. The article/essay/novel "_______________________," by ________________
   [title] [the author(s)]
   (claims/discusses/states/explains) ____________________________.
   [thesis statement / main idea paraphrased]

Or

B. According to ______________________ in his/her (their) article
   "_______________________," discusses that ____________________________________.
   [thesis statement / main idea – paraphrased]

**STEP 3. Author's Explanation and Development.** Follow the main idea statement with details that directly support, explain or prove the author’s main idea. Include important explanations or examples of the major supporting details. Students should use their own words for the summary. If a student uses more than three consecutive words from the article, use quotation marks. Students may quote an important phrase/sentence, but a summary is not a string of quotations.

**STEP 4. The Concluding Sentence.** Start the last sentence with transition words, such as: in conclusion, in summation, or in summary. Restate the thesis statement (the main idea of the article).

**STEP 5. Final Check.** Proofread the summary and check for spelling, punctuation, grammar and coherence. Students should make sure they have used their own words. Paraphrase and don’t copy!

**STEP 6. Review.** Read the original essay again. Has the summary followed the same organization of thought as the article? Students should make certain they have not added their opinion or reaction. A summary is an objective piece of writing.
Lecture Skills

- Students with poor listening skills do not take notes and will forget most of what they have heard. (Warrier, 2010, p. 1)

- Recent research points to the necessity for students to be actively involved in lectures, which can increase mastery of content and foster the development of thinking skills. (Bonwell & Eison, 1991)

- By using KWL (what I know, what I want to know and what I learned) as an active learning strategy in the classroom, at a gradual or accelerated rate, learning and retention can be increased. (Fritz, 2010)

- In addition, an overall topic outline should be presented before going into details to help students preview what is going to be discussed.

- Many students do not have a method of taking notes. Presenting the Cornell methods, or illustrating outlining or mapping in your own lecture style helps to give those who do not have a method some choices in how to take notes. Collecting notes periodically and commenting on them also helps. Students do better if they know something is going to be graded.

- Allowing time at the end of class (three minutes) for students to go over their notes and to ask questions reinforces comprehension and mitigates against the fact that 60% of what is discussed in lecture and taken down in notes is lost if not reviewed within twenty-four hours. Asking students to briefly state on a sheet of paper what the important points of the lecture were, and what part of the lecture they did not understand, and then asking them to turn in their notes, allows the instructor to see whether the student understands the lecture. (Angelo, 1993)
**K-W-L Exercise**

**Objective**  
Elicits students’ prior knowledge and experience before, during and after reading to enhance their understanding and recall.

**Rationale/Description**  
This brainstorming strategy requires that students tell everything they know about a topic in the pre-reading stage (K), indicate what they want to know more about in the purpose-setting stage (W) that guides their reading, and tell what they learned after reading the text in the post-reading stage (L). K-W-L has its roots in the schema-theoretic view of comprehension, which suggest that by stimulating readers’ prior knowledge (getting them to talk about their experiences), their comprehension will be increased.

**Procedures**

**Pre-Reading Stage**  
**Step One:** Explain to the students that they will engage in a brainstorming activity to get them to think about everything they know about a given topic. Remind the students that thinking about what they already know will help them better remember and understand what they read.  
**Step Two:** Display the KWL form on an overhead projector and hand out the forms to the students. Explain the meaning of each phase.  
**Step Three:** Ask the students to think about everything they can about a given topic to be studied, being certain that it is a topic on which they may possess at least some prior knowledge. Write the contribution s of the class under section K on the form.  
**Step Four:** Now ask the students what they want to learn about the topic to be studied, based at least in part on their previous contributions. Write their responses in question form under the “L” section on the form. The teacher may choose to add a few questions/purposes to further emphasize key concepts. Explain that these questions serve as their purposes for reading and will help them focus on the important information in the text.

**Reading Stage**  
**Step Five:** Tell the students to read the selection, using the purpose-setting questions as their guide.

**Post-Reading Stage**  
**Step Six:** After the reading, have the students brainstorm what they recall from the text and write their contributions on the board or an overhead transparency. The teacher may choose to prompt for or add key concepts not initially mentioned.


## K-W-L Template

<table>
<thead>
<tr>
<th>K</th>
<th>W</th>
<th>L</th>
</tr>
</thead>
<tbody>
<tr>
<td>What we <em>know</em></td>
<td>What we <em>want</em> to find out</td>
<td>What we <em>learned</em> and still need to learn</td>
</tr>
</tbody>
</table>
Critical, Constructive and Applied Thinking, Reading and Writing

“Curiosity is insubordination in its purest form.” Vladimir Nabokov

- At the heart of critical thinking is the following observation about why we read, eloquently expressed by the editor of The Best American Short Stories series Katrina Kenison, “We all read in order to test our own knowledge of life and to enlarge upon it.” English reading and writing Professors Donald Hall and Sven Birkerts (2007) go even further with Kenison’s observation to say that how we think is how we are. To think critically, therefore, the challenge is indeed to go beyond our own knowledge so that we can entertain ideas and values that are different from our own in order to discover that we are not, perhaps, who we thought we were.

- According to Jonah Lehrer, author most recently of How We Decide, the brain is an argument and its default position, unfortunately, is certainty. The only way to counteract our brain’s bias for certainty, instructs Lehrer, is to encourage some inner dissonance. If we only entertain ideas and beliefs that assuage our assumptions, we wind up discounting, or worse ignoring, relevant evidence (Lehrer, 2010, p. 217).

- Reading educators encourage their students to think about their thinking as they read so they begin to understand that by paying attention and observing their thinking, they will become active readers and perhaps discover that they know more than they think they know. In Reading education circles this is known as metacognition: “The knowledge of how to read as well as the ability to regulate and address the thinking process” (Smith & Morris, p. 607). (See Reading and Learning in Stages.) Some of the latest research in neuroscience is focusing on why thinking about thinking is so important. What this research has found is that regardless of one’s area of expertise, “the brain always learns the same way, by accumulating wisdom through error” (p. 249). So, when Lehrer acknowledges that “The best way to make sure you are using your brain properly is to study your brain at work, to listen to the argument inside your head” (p. 250), he is advocating for metacognition. By having our students tune into their mental gymnastics, we are encouraging them to internalize new knowledge and assuring them that they can learn to think better.

Partial List of Common Values: adventure, ambition, collective responsibility, comfort, competition, cooperation, courage, excellence, flexibility, freedom of speech, generosity, harmony, honesty, justice, rationality, security, spontaneity, tolerance, tradition, wisdom

Primary Values of a Critical Thinker: autonomy, curiosity, humility, and respect for good reasoning wherever it is found

(Browne & Keeley, 2010)
Guidelines for Teaching for Critical and Creative Outcomes

1. Aim higher
2. Believe students are capable of creative production
3. Ask for creative responses
4. Provide critical-constructive feedback
5. Invite and welcome expressions of curiosity
6. Illustrate and underscore new twists on old patterns
7. Teach students how to give as well as receive critical-creative critiques
8. Accept a much greater level of error or mistakes than we are comfortable with or used to experiencing
9. Invite contrary or opposing views
10. Find ways to grapple with authentic as well as academic issues.

(Manzo, Manzo & Estes, 2001)
Exercises for Critical Thinking

Cooperative Learning Strategies

Cooper (1995) argues that putting students in group learning situations is the best way to foster critical thinking. "In properly structured cooperative learning environments, students perform more of the active, critical thinking with continuous support and feedback from other students and the teacher" (p. 8).

One example of a cooperative learning strategy would be the **Think, Pair, Share Model** (Gunter, Estes, & Schwab, 2003).

Here are the steps for this strategy:

1. Instructor poses a question to the class. (Avoid lower level single response questions.) “What would have been the likely outcome if the United Sates had maintained its isolationist position and not entered the European theater of World War II?”

2. Students think individually. Give the students time to ponder the question and think about how they might answer. Students should understand that although there may be no one right answer, it is important that everyone have some reasonable answer to the question.

3. Each student discusses his/her answer with a fellow student. The students should reach a consensus for the answer to the question. This allows the students to “try” out other possibilities.

4. Students share their answers with the whole class.

Reciprocal Peer Questioning

Following a lecture, the teacher displays a list of question stems (unfinished questions). These question stems might be, "What are the strengths and weaknesses of...;" “What were some of the causes for...;” “Who was involved with...” etc.). Students must complete the question stems based upon the lecture material. In small groups, the students ask each other their finished (or polished) questions. Then, the whole class discusses some of the questions from each small group.

Reader’s Questions: Require students to write questions on an assigned reading and have them turn the questions in at the beginning of class. Select a few of the student-generated questions as the impetus for the classroom discussion that follows.

(King, 1995)
The Socratic Method

The Socratic Method is an exploratory model of inquiry that promotes independent critical thinking skills. Participants work together to investigate a topic in order to find logical answers to challenging questions, requiring ongoing professional dialogue. In contrast to lecturing, this classic approach provides feedback, which allows the coach to monitor participants’ understanding during the teaching and learning process.

Steps in the Socratic Method:

1. Select a question or issue of interest, which could be based upon an assigned reading.

2. Produce and examine a central statement.

3. Clarify the statement and its relationship to the question or issue.

4. List and critically examine support, reasons, evidence, and assumptions related to the central statement.

5. Explore the origin or source of the statement.

6. Develop and critically examine the implications and consequences of the statement.

7. Seek out and fairly examine conflicting or alternative points of view.

Dialogues

Robertson and Rane-Szostak (1996) identify two methods of stimulating useful discussions in the classroom:

Written dialogues: Give students written dialogues to analyze. In small groups, students must identify the different viewpoints of each participant in the dialogue. They must look for biases, presence or exclusion of important evidence, alternative interpretations, misstatement of facts, and errors in reasoning. Each small group must decide which view is the most reasonable. After coming to a conclusion, each group acts out their dialogue and explains their analysis of it.

Spontaneous Group Dialogue: One group of students is assigned roles to play in a discussion (such as leader, information giver, opinion seeker, and devil’s advocate). Four observer groups are formed with the functions of determining what roles are being played by whom, identifying biases and errors in thinking, evaluating reasoning skills, and examining ethical implications of the content.
Testing and Test Taking Techniques

- Although the primary function of tests may be to evaluate student achievement, tests can provide a significant learning opportunity and contribute to student knowledge. (Anderson & Biddle, 1975; La Porte & Voss, 1975)

- Repeated testing enhanced retention more than taking a single test.

- Testing with feedback produced better results than testing without feedback. (Karpke, 2010)

- Students who take an initial test/quiz perform better on the final exam than students who have not taken an initial quiz but have worked on comparable written exercises (Gay, 1976) or have spent equivalent time reviewing the material without a quiz. (Nungesher & Duchasel, 1982)

- Students who have taken a quiz are immediately interested in going over the answers, which allows students to fix incorrect responses and to understand what instructors are looking for on quizzes and exams.

- There are no differences between expanding or equally spacing schedules of tests and quizzes. Repeated retrieval enhanced long-term retention, but how the tests were spaced did not matter. (Karpke, 2010)

- Test anxiety may also be relieved by more testing. Culler and Holohan (1980) reported that a deficit in adequate study habits and/or test-taking skills, not anxiety, was central to the impaired performance of test-anxious students.

- In a recent article in the Los Angeles Times, test anxiety may also be relieved by having students briefly write about their fears just before the test or quiz.

- Attached are hints for doing well on multiple choice tests with a practice exercise and hints on how to do well on essay tests.
How to Improve Your Performance on Essay Tests

Before the Test

1. There is no substitute for knowing the material that will make up your test. Realistically, some parts of the material are more important and more likely to appear on essay tests than others.

2. Try to think of questions that might appear on the test. Review your class notes, textbook and handouts to determine what the teacher has emphasized. Keep in mind that essay questions may ask for information on a specific topic or a general understanding of the course material. Be prepared for both.

3. A good way to prepare for a big-picture question is to make an outline or map the material, combining your class notes, textbook information and handouts.

During the Test

1. Carefully read the question. Underline what is being asked. You may write a wonderful essay, but if it doesn’t answer the question, which could include multiple parts, it will not do you much good. Pre-write/brainstorm your answer. This is a means of organizing your answer before writing. Pretend that your teacher knows nothing and you have to explain everything to him/her. Use examples and explain your examples.

2. A traditional essay has an introduction, a conclusion and paragraphs of development.

3. To write a good introductory statement it sometimes helps to take the question and turn it into a statement.

4. When a question has more than one part, make sure you answer all parts.

5. Answer in complete sentences

6. Save some time to proofread.

7. If you run out of time, write some notes in summary form. These will often earn you partial credit.

8. Make use of your returned papers. You can learn a lot by reading your instructors’ comments and correcting the answers.
Test Taking Techniques for Multiple Choice Exams

1. Read directions carefully.

2. Do not dwell on any one question too long. Leave it blank and come back.

3. Read the stem of the question and **each** answer as a true/false statement. Eliminate the incorrect answers.

4. Watch out for absolutes (words like always, never, none, everyone, all). Answers with these words are usually wrong. Usually the only time answers with such words are correct is when that is exactly what the author said. **Note:** If there is one exception, the answer is wrong.

5. All of the above and none of the above. If you are using the true/false technique, if one answer is wrong, then all of the above is wrong. If one answer is right, then none of the above can be eliminated.

6. Use grammar clues such as “a” and “an.” An “a” goes with words beginning with a consonant and “an” goes with a word beginning with a vowel.

7. When in doubt, and an answer includes language from the question, go with that answer. Also, look for clues in the question that may help give away the answer.

8. Two questions on the test may be similar. Use the correct answer for one question to help you find the answer for the other.

9. When you have eliminated answers using the true/false technique, and are left with two possible answers but can’t decide which one is correct, go with the longer answer. This does not mean that you go through the entire test and pick the longer answer. This technique is used only when you have eliminated other possibilities and are left with two answers that seem correct. **Hint:** It usually takes more words to answer a question correctly because it needs to be written carefully.

10. Check your answers, but **do not** change an answer unless you are sure that you have misread the question or its answers. How many times have you changed an answer to discover you were right the first time!

---

_You can improve your score using these techniques, but, remember, nothing beats studying!_
**Fribble (Multiple-Choice Assessment) Handout**

**The Fribbled What?**  
An Exercise in Using Test Taking Techniques through Nonsense Words

1. Trassig normally occurs when the  
   a. dissels frull.  
   b. lups chasses the vom.  
   c. belgo lisks easily.  
   d. viskal flans, if the viskal is zortill.

2. The fribbled breg will snicker best with an  
   a. Mors  
   b. Ignnu  
   c. Derst  
   d. Sortar

3. What probable causes are indicated when trisel doss occurs in composts?  
   a. The sabs foped and the doths tinzed.  
   b. The kredges roted with the rots.  
   c. Rakogs wee not accepted in the sluth.  
   d. Polats were thonced in the sluth.

4. The primary purpose of the class in frumpaling is to  
   a. remove cluss-prangs.  
   b. patch tremalls.  
   c. losen cloughs.  
   d. repair plumots.

5. Why does the sigla frequently overfesk the trelsum?  
   a. All siglas are mellious.  
   b. Siglas are always votial.  
   c. The trelsum is usually tarious.  
   d. No tresla are directly feskable.

6. The snickering function of the ignu is most effectively performed in connection with which one of the following snicker snacks?  
   a. Arazma tol.  
   b. Fribbled breg.  
   c. Groshed stantol.  
   d. Frallied stantol.

**Answers:**  
1. d. The question uses the word “normally,” and this is the only answer containing a qualifying phrase.  
2. b. This is the only answer beginning with a vowel. The word “an” at the end of the query phrase is the tip-off.  
3. a. The question asks for more than one cause.  
4. a. This answer contains the word “cluss,” which was used in the question.  
5. c. The other answers are all absolutes.  
6. b. Fribbled breg was linked with ignu in question 2.
Fifty Classroom Assessment Techniques (CATS)

Assessing Prior Knowledge, Recall, and Understanding
The CATS in this group are recommended for assessing declarative learning, or the content of a particular subject.

1. Background Knowledge Probe: Short, simple questionnaires prepared by instructors for use at the beginning of a course or at the start of new units or topics; can serve as a pretest; typically elicits more detailed information.

2. Focused Listing: Focuses students’ attention on a single important term, name, or concept from a lesson/class session and directs students to list ideas related to the “focus.”

3. Misconception/Preconception Check: Focus is on uncovering prior knowledge or beliefs that hinder or block new learning; can be designed to uncover incorrect or incomplete knowledge, attitudes, or values.

4. Empty Outlines: In a limited amount of time, students complete an empty or partially completed outline of an in-class presentation or homework assignment.

5. Memory Matrix: Students complete a table about course content in which row and column headings are complete but cells are empty.

6. Minute Paper: (Perhaps the most frequently used CAT) Students answer two questions, “What was the most important thing you learned during this class?” and “What important question remains unanswered?”

7. Muddiest Point: (Considered my many as the simplest CAT) Students respond to one question (What was the muddiest point in _________?) Well-suited to large, lower-division courses, but not to those that emphasize integration, synthesis and evaluation.

Assessing Skill in Analysis and Critical Thinking
The CATS in this group focus on analysis—the breaking down of information, questions, or problems to facilitate understanding and problem-solving.

8. Categorizing Grid: Students complete a grid containing two or three overarching concepts and a variety of related subordinate elements associated with the larger concepts.

9. Defining Features Matrix: Students categorize concepts according to presence or absence of important defining features.

10. Pro and Con Grid: Students list pros/cons, costs/benefits, advantages/disadvantages of an issue, question or value of competing claims.

11. Content, Form, and Function Outlines: In an outline form, students analyze the “what” (content), “how” (form), and “why” (function) of a particular message (e.g. poem, newspaper story, billboard, critical essay). Also called “What, How, & Why Outlines.

12. Analytic Memos: Students write a one- or two-page analysis of a specific problem or issue to help inform a decision-maker.
Assessing Skill in Synthesis and Creative Thinking
The CATS in this group focus on synthesis—each stimulate the student to create, and allow the faculty to assess, original intellectual products that result from a synthesis of course content and the students’ intelligence, judgment, knowledge, and skills.

13. One-Sentence Summary: Students answer the questions “Who does what to whom, when, where, how, and why?” (WDWWWWW) about a given topic and then creates a single informative, grammatical, and long summary sentence.

14. Word Journal: Involves a two-part response. First, the student summarizes a short text in a single word. Second, the student writes 1-2 paragraphs explaining the word choice.

15. Approximate Analogies: Students simply complete the second half of an analogy—a is to b as x is to y; described as approximate because rigor of formal logic is not required.

16. Concept Maps: Students draw or diagram the mental connections they make between a major concept and other concepts they have learned.

17. Invented Dialogues: Students synthesize their knowledge of issues, personalities, and historical periods into the form of a carefully structured illustrative conversation; two levels of invention are involved, one, select and weave quotes from primary sources and/or, two, invent reasonable quotes that fit characters and context.

18. Annotated Portfolios: Students assemble a very limited number of examples of creative work and supplement with own commentary on significance of examples.

Assessing Skill in Problem-Solving
The CATS in this group focus on problem-solving skills of various kinds—recognition of types of problems, determining principles and techniques to solve, perceiving similarities of problem-features and ability to reflect and then alter solution strategies.

19. Problem Recognition Tasks: Students recognize and identify particular problem types.

20. What’s the Principle? Students identify principle or principles to solve problems of various types.

21. Documented Problem Solutions: Students track in a written format the steps they take to solve problems as if for a “show & tell.”

22. Audio- and Videotaped Protocols: Students work through a problem-solving process and it is captured to allow instructors to assess metacognition (learner’s awareness of and control of thinking).

Assessing Skill in Application and Performance
The CATS in this group focus on students’ abilities to apply important—sometimes referred to as conditional knowledge—knowing when and where to apply what know and can do.

23. Directed Paraphrasing: Students paraphrase part of a lesson for a specific audience demonstrating ability to translate highly specialized information into language the clients or customers can understand.

24. Application Cards: Students generate examples of real-work applications for important principles, generalizations, theories or procedures.
25. Student-Generated Test Questions: Students generate test questions and model answers for critical areas of learning.

26. Human Tableau or Class Modeling: Students transform and apply their learning into doing by physically modeling a process or representing an image.

27. Paper or Project Prospectus: Students create a brief plan for a paper or project based on your guiding questions.

Assessing Students’ Awareness of Their Attitudes and Values
The CATS in this group are designed to assist teachers in developing students’ attitudes, opinions, values, and self-awareness within the course curriculum.

28. Classroom Opinion Polls: Students indicate degree of agreement or disagreement with a statement or prompt.

29. Double-entry Journals: Students record and respond to significant passages of text.

30. Profiles of Admiral Individuals: Students write a brief description of the characteristics of a person they admire in a field related to the course.

31. Everyday Ethical Dilemma: Students respond to a case study that poses a discipline-related ethical dilemma.

32. Course-related Self-Confidence Surveys: Students complete an anonymous survey indicating their level of confidence in mastering the course material.

Assessing Students’ Self-Awareness as Learners
The CATS in this group are recommended to help students express personal goals and clarify self-concept in order to make a connection between the articulated goals and those of the course.

33. Focused Autobiographical Sketches: Students write a brief description of a successful learning experience they had relevant to the course material.

34. Interest/Knowledge/Skills Checklists: Students complete a checklist survey to indicate their knowledge, skills and interest in various course topics.

35. Goal Ranking and Matching: Students list and prioritize 3 to 5 goals they have for their own learning in the course.

36. Self-Assessment Ways of Learning: Students compare themselves with several different “learning styles” profiles to find the most likely match.

Assessing Course-Related Learning and Study Skills, Strategies, and Behaviors
The CATS in this group focus both student and teacher attention on the behaviors the student actually engages in when trying to learn.

37. Productive Study-Time Logs: Students complete a study log to record the quantity and quality of time spent studying for a specific course.
38. Punctuated Lectures: Students briefly reflect then create a written record of their listening level of a lecture. Repeat twice in the same lecture and 2-3 times over two to three weeks.

39. Process Analysis: Students outline the process they take in completing a specified assignment.

40. Diagnostic Learning Logs: Students write to learn by identifying, diagnosing, and prescribing solutions to their own learning problems.

Assessing Learner Reactions to Teachers and Teaching
The CATS in this group are designed to provide context-specific feedback that can improve teaching within a particular course.

41. Chain Notes: On an index card that is distributed in advance, each student responds to an open-ended prompt about his or her mental activity that is answered in less than a minute.

42. Electronic Survey Feedback: Students respond to a question or short series of questions about the effectiveness of the course.

43. Teacher-designed Feedback Forms: Students respond to specific questions through a focused feedback form about the effectiveness of a particular class session.

44. Group Instructional Feedback Technique: Students respond to three questions related to the student’s learning in the course.

45. Classroom Assessment Quality Circles: A group or groups of students provide the instructor with ongoing assessment of the course through structured interactions.

Assessing Learner Reactions to Class Activities, Assignments, and Materials
The CATS in this group are designed to give teachers information that will help them improve their course materials and assignments.

46. RSQC2 (Recall, Summarize, Question, Connect and Comment): Students write brief statements that recall, summarize, question, connect and comment on meaningful points from previous class.

47. Group-Work Evaluation: Students complete a brief survey about how their group is functioning and make suggestions for improving the group process.

48. Reading Rating Sheets: Students complete a form that rates the effectiveness of the assigned readings.

49. Assignment Assessments: Students respond to 2 or 3 open-ended questions about the value of an assignment to their learning.

50. Exam Evaluations: Students provide feedback about an exam’s learning value and/or format.
Scholarly Attributes

Arrive Prepared Have Multiple Perspectives Possess Academic Humility Exercise Intellect
Ponder Set Goals Utilize Memory Employ Varied Resources Ask Questions Save Thoughts

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