

# The SI Leader's Guide to Supplemental Instruction



SUPPLEMENTAL INSTRUCTION

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**MONMOUTH  
UNIVERSITY**

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WHERE LEADERS LOOK *forward*

## **Part I: Overview of the SI Program 4**

- The SI Program 4
- Tasks of the SI Leader 6

## **Part II: Relationships 8**

- The SI Leader and the Professor 8
- The SI Leader and the Student 10
- Referring Students 12
- Guide to Campus Resources 13
- The SI Leader and the Coordinator 14

## **Part III: Conducting SI Sessions 16**

- The First Day of Class 16
- Introducing SI to the Class 17
- Frequently Asked Questions 18
- Opening the SI Session 19
- Conducting the SI Session 20
- Directing Discussion Back to the Group 22
- Closing the SI Session / Reviewing for Exams 24
- SI Attendance Strategies 26

## **Part IV: Forms 28**

- Supplemental Instruction Survey 28
- End-of-Term Supplemental Instruction Survey 29
- Supplemental Instruction Sign-in Sheet 30
- Planning the SI Session 31
- Self-Test for SI Leaders 32
- Collaborative Learning Techniques 34

## **Part V: Polishing Session Strategies 37**

|                               |    |
|-------------------------------|----|
| Lecture Review                | 37 |
| Oral Reading of Lecture Notes | 38 |
| Incomplete Outline            | 39 |
| The Matrix                    | 40 |
| Visual Techniques             | 41 |
| The Informal Quiz             | 43 |
| Vocabulary Activities         | 45 |
| Time Lines                    | 47 |
| Preparing for Exams           | 48 |
| Math SI Sessions              | 49 |
| Problem-Solving SI Sessions   | 51 |
| Humanities SI Sessions        | 53 |
| Post-Exam Survey              | 55 |

## **Part VI: Study Skills 56**

|   |    |
|---|----|
| Note Taking                                   | 56 |
| Note Cards                                    | 57 |
| Mnemonic Devices                              | 58 |
| Eight Ways to Abbreviate                      | 59 |
| Reading Textbooks                             | 60 |
| Marking Textbooks                             | 61 |
| True/False Exam Questions                     | 62 |
| Multiple Choice Exam Questions                | 63 |
| Matching Exam Questions                       | 64 |
| Essay Exam Questions                          | 65 |
| Common Words Used in Essay Exams              | 66 |
| Short-Answer/Fill-in-the-Blank Exam Questions | 67 |

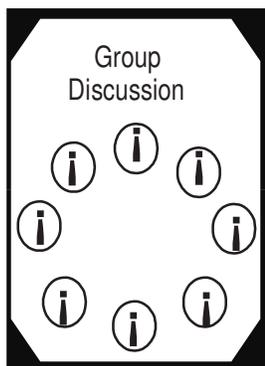
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# Part I: Overview of the SI Program

## The SI Program

Underline the key words or ideas presented in this summary. Be prepared to share your responses with the group.

1. The SI program targets traditionally difficult academic courses—those that have a high rate of D or F grades and withdrawals—and provides regularly scheduled, out-of-class, peer-facilitated sessions.
2. SI does not identify high-risk students, but rather identifies historically difficult classes.
3. SI leaders begin sitting in classes the first week of the term.
4. SI sessions normally occur in classrooms near the course classroom instead of in a learning center.
5. SI sessions are open to all students in the targeted section and are attended on a voluntary basis free of charge.
6. The SI leaders are the key people in the program. SI leaders are students who have demonstrated competence in this or in a comparable course.
7. SI sessions are comprised of students of varying abilities, and no effort is made to segregate students based on academic ability. Since SI is introduced on the first day of classes and is open to all students in the class, SI is not viewed as remedial.
8. SI leaders are trained. This training covers such topics as how students learn as well as instructional strategies aimed at strengthening student academic performance, data collection and management details
9. SI leaders attend all class sessions, take notes, read all assigned material, and conduct two one-hour SI sessions each week. SI sessions integrate how-to-learn with what-to-learn.
10. Students who attend SI sessions discover appropriate application of study strategies, e.g. note taking, graphic organization, questioning techniques, vocabulary acquisition, problem solving, and test preparation, as they review content material.



11. Students have the opportunity to become actively involved in the course material as the SI leaders use the text, lecture notes, and supplementary readings as the vehicle for refining skills for learning.
12. The SI Coordinator is responsible for identifying the targeted courses, gaining faculty support, selecting and training SI leaders, monitoring the quality of SI sessions, and evaluating the program.
13. The SI leaders meet as a group with the SI Coordinator at least three times during the term for follow-up and problem-solving.
14. SI participants earn higher course grades and withdraw less often non-SI participants. Also, data demonstrate higher reenrollment and graduation rates for students who participate in SI.

## **T**he Inside Scoop on *Group Discussions*

*Group discussion* is probably the most common activity associated with collaborative learning. As such, we tend to take it for granted and rarely give much thought to the dynamics of facilitating a successful group discussion.

However, even slight changes in the way we approach a group discussion can make an important difference in the manner in which group members elect to involve themselves. For instance, note that in the material you just discussed, you were NOT asked to simply read and discuss it. Instead, you were asked to underline the key ideas and THEN discuss them. In this case, underlining the material as you read it encourages active reading rather than passively skimming of the material.

Sometimes the LEAST effective way to start a group discussion is to throw out a question and wait for a response. Why do you think that is the case?

# Tasks of the SI Leader

Form groups and discuss the tasks of the SI leader. Specifically discuss with your group which of the responsibilities listed below are your favorite and least favorite parts of being an SI leader.

## 1. SI Leader Training

- At the beginning of the semester.
- Throughout the semester.
- Meet with SI Coordinator regularly.

## 2. Attend the Targeted Class

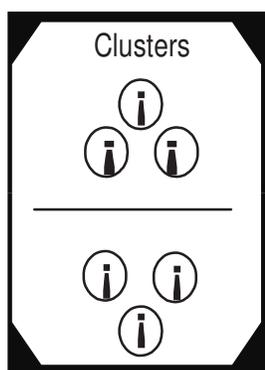
- Introduce yourself to the course instructor.
- Ascertain requirements for the course.
- Introduce SI to the class and administer beginning-of-term survey.
- Announce in class the SI schedule and room locations.

## 3. Conduct Sessions

- Plan an introduction to the SI session.
- Schedule SI sessions.
- Check with SI Coordinator for room assignments for SI sessions.
- Organize the SI with built-in flexibility to the needs of attendees.
- Prepare handouts for SI sessions.
- Hold marathon SI sessions or extra SI sessions when needed.
- Provide closure (quiz, summary, suggestion for future study).

## 4. Support Faculty

- SI leaders support classroom instruction in every way.
- SI program is offered only in classes where the faculty member understands and supports SI.



## 5. Integrate Content and Learning Skills

- Redirect discussion to the group.
- Use the language of the discipline.
- Integrate how to learn with what to learn.
- Get students organized and started but don't do the work for them.

## 6. Collect Data for Program Evaluation

- Collect attendance data at **every SI session**, i.e. student name, course title, date, and time.
- Administer end-of-term questionnaire.

**T**

### he Inside Scoop on *Clusters*

A *Cluster* is really just a group that is broken down into smaller groups. To be effective a cluster should be no larger than three or four people. Using *clusters* can be a powerful way to change the interactions within a group. Breaking people in smaller groups accomplishes several things:

- It makes them more accountable.
- It promotes active processing of material.
- It encourages participation by everyone.

Sounds great doesn't it? But it is not as simple as it sounds. Most SI leaders quickly learn they are likely to encounter resistance when they ask students in their sessions to break into small groups. It turns out that students have other ideas about what an ideal session should be. In students' minds, it would be ideal to simply walk into the session, sit in the back row, not have to say or do anything, and have the SI leader fill their heads with all the information they need to do well in the course. And that will happen . . . when pigs fly! But until then, the SI leader must find a way to involve SI participants with the material. Cluster groups are a surefire way to do so.

The key to making a cluster group work is to be firm. The **FIRST** time you tell participants to break into smaller groups, you must show resolve. Otherwise you'll encounter resistance each time you ask them to break into groups.

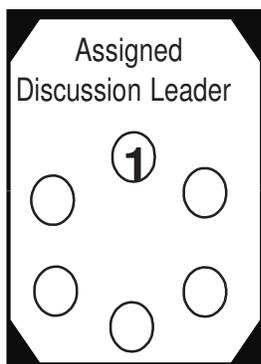
# Part II: Relationships

## The SI Leader and the Professor

Break into groups. Assign each person in the group one of the situations presented below and ask him or her to lead the group in a discussion about how he or she would handle it. You may want to view the “Dos and Don’ts” on the next page for tips.

### What would YOU do in these situations?

1. The professor asks you to do something the SI Coordinator has asked you not to do (example: lecture for him or her during a time he or she will be absent).
2. The professor offers to show you some of the test items from an upcoming exam.
3. The professor asks you not to pass out old exams in SI. A student brings one to the SI session.
4. The professor asks you to help distribute handouts in class.
5. The professor asks if he or she can visit one of your SI sessions.
6. The professor wants to know which students have been attending the SI sessions.
7. The professor asks for feedback about content-related difficulties the students are experiencing.



## Do

- Treat the instructor as your ally, never your adversary.
- Meet with the professor during his or her office hours to clear up any uncertainties you may have regarding material discussed in the SI or in the lectures.
- Provide the instructor with feedback about how the sessions are going. Although it is not recommended that professors attend SI sessions, most SI programs will not self-destruct if the professor elects to visit one or two sessions.
- Show the professor the handouts you plan to share with the students in SI. He or she can help make your handouts more appropriate to the course material.
- Ask the professor for permission to make announcements to the class. Even though your professor agreed in advance to allow you time to survey the class and to make necessary announcements, it is always good policy to request permission before doing so.
- Be helpful to the professor whenever possible. You do not have to assume the role of being the professor's assistant but offer to assist the professor in tasks such as passing out materials or other similar kinds of activities.

## Don't

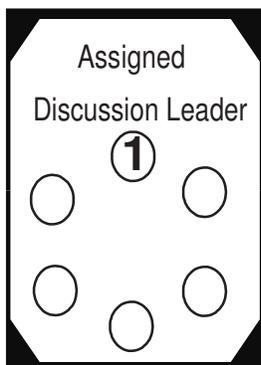
- Criticize the professor during an SI session. Students will report this to the professor and it is not helpful. Students are responsible for their academic performance, regardless of the professor's style.
- Grade papers or tests or be involved in constructing test items.
- Set yourself up as a teacher. Your purpose is to facilitate the learning of the material, not to do or evaluate the teaching.
- Hesitate to refer the professor to the SI Coordinator if he or she requests anything about which you are uncertain or uncomfortable.
- Answer questions the professor poses to the class or involve yourself in class discussions unless the professor directly invites you to do so.

# The SI Leader and the Student

Break into groups. Assign each person in the group one of the situations presented below and ask him or her to lead the group in a discussion about how he or she would handle it. You may want to view the “Dos and Don’ts” on the next page for tips.

## What would YOU do in these situations?

1. A student asks you for a copy of your lecture notes because "his or her mom is in the hospital."
2. A student asks you for the handouts you have prepared for the SI session but says he or she can't stay for the actual SI session.
3. A student repeatedly arrives late for the SI sessions.
4. The handout you have created is on the reading that was required for the last class session. No one in the group has done the reading.
5. A student tells you: "I got a 90 on my last test, and I don't need to come to SI anymore."
6. A student confides personal problems. (This could range from anything to registration difficulties to marital abuse problems.)
7. A student is attempting to go beyond the actual content of the course as presented in class or assigned reading materials.



## Do

- Say “yes” to students’ requests whenever it is reasonably possible to do so.
- Remember that the goal of SI is more than simply helping students score well on examinations. Many things can contribute to attrition.
- Recognize the limits of your job description and training. You are a recognized expert on the course, but that’s as far as you have to go. Listen patiently to all other problems and refer the student to those persons who are recognized experts with the problem the student describes.
- Attempt to treat all students as you would treat a friend.
- Provide straightforward, truthful responses.

## Don't

- Allow yourself to be drawn into an argument with students. Even if they are clearly wrong, asking for it, or start it first.
- Demand that students have to defend themselves to you. For instance, if they miss a session, act concerned but don’t demand an explanation.
- Say anything that would make you sound like a parent, teacher, police officer, judge, or authority of any kind.
- Feel obligated to fix problems that students create and can solve for themselves. Just remember to be diplomatic when you must decline the invitation to get involved.

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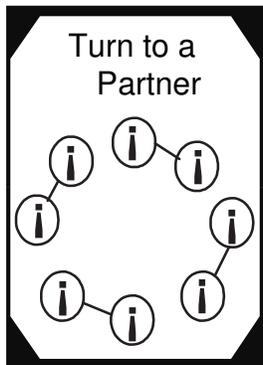
### he Inside Scoop on Working with Students

The relationship SI leaders have with their fellow students is critical to the success of SI. Above all, students should always feel welcomed, accepted, and believed by the SI leader. If a student is repeatedly disruptive, the SI Coordinator should be consulted to help deal with the problem student. SI leaders are more effective when they are not perceived as authority figures.

# Referring Students

Break into groups of two. Using the “Guide to Campus Resources,” discuss with your partner your recommendations on where to refer students who reported the following difficulties:

1. “Someone broke into my car and took my CDs.”
2. “English is my second language and I’m having difficulties following the lectures.”
3. “One of my professors keeps coming on to me.”
4. “I would like to get involved in some campus organizations.”
5. “My father recently passed away.”
6. “I have a learning disability.”
7. “I would like to find out if there are other students here who are also from my country.”



## **T**he Inside Scoop on *Turn to a Partner*

Working in pairs is a fast and efficient way of getting everyone involved in the discussion. Remember, whoever does most of the talking also does most of the learning. Also, the brain has to work just as hard to articulate something to one person as it does to ten, so working in pairs is a powerful way of getting everyone’s brain working at the same time.

# Guide to Campus Resources

|  |                                       |          |
|--|---------------------------------------|----------|
| Affirmative Action, Human Resources,<br>and Compliance | Wilson Hall 304                       | 571-7577 |
| Campus Police  | Police Department                     | 571-3472 |
| Career Services  | Lower level, Student Center           | 571-3471 |
| Counseling and Psychological Services                  | 3 <sup>rd</sup> floor, Student Center | 571-7517 |
| Disability Services                                    | 1 <sup>st</sup> floor, Student Center | 571-3460 |
| Financial Aid  | 1 <sup>st</sup> floor, Wilson Hall    | 571-3463 |
| Help Desk  |                                       | 571-3539 |
| International Student Services                         | 2 <sup>nd</sup> floor, Student Center | 571-3640 |
| Lost and Found   | Police Department                     | 571-3472 |
| Residential Life                                       | Pinewood Hall                         | 571-3465 |
| Sexual Harassment                                      | Wilson Hall 304                       | 571-7577 |
| Student Activities and Student<br>Center Operations    | 2 <sup>nd</sup> floor, Student Center | 571-3586 |
| Student Government Association                         | Student Center                        | 571-3484 |
| Supplemental Instruction                               | Lower level, Student Center           | 263-5345 |
| Tutoring Services                                      | 1 <sup>st</sup> floor, Student Center | 263-5721 |
| Writing Services                                       | Lower level, Student Center           | 571-7542 |

# The SI Leader and the Coordinator

It is the responsibility of the SI Coordinator to assist you in doing your job as an SI leader. How might the SI Coordinator assist you with students, professors, and sessions? Jot down some ideas in the spaces provided, and then pair up with a partner to share your ideas.

The Coordinator can assist me with students when . . .

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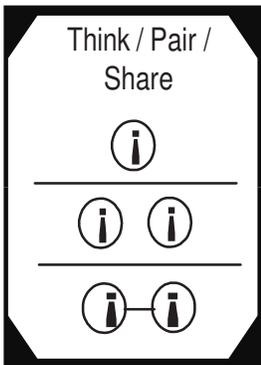
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The Coordinator can assist me with the professor when . . .

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The Coordinator can assist me in getting things I will need for the sessions such as . . .

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# Part III: Conducting SI Sessions

## The First Day of Class

There are many things SI Leaders must remember to do on the first day of class. Organize the tasks below numbering them in the order in which they should be done. After you have completed the exercise below, pair up with a partner to share your ideas.

- Collect the surveys.
- Remind the professor that you will need to make a brief presentation about Supplemental Instruction to the class.
- Write your name and the campus SI number on the blackboard.
- Hand out the beginning-of-the-term survey to the students.
- Introduce SI to the students.
- Hand out a one-page overview of the SI program that includes some of the material from your oral presentation.
- Arrive on time

Other:

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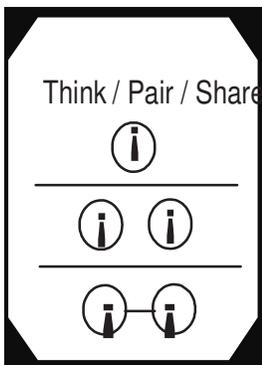
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# Frequently Asked Questions about the Supplemental Instruction (SI) Program

## What is SI?

Supplemental Instruction (SI) is a series of weekly review sessions for students taking historically difficult courses. SI is provided for all students who want to improve their understanding of course material and improve their grades.

Attendance at sessions is voluntary. For you, the student, it's a chance to get together with people in your class to compare notes, to discuss important concepts, to develop strategies for studying the subject, and to test yourselves before your professor does, so that when he/she does, you'll be ready. At each session you will be guided through this material by your SI leader, a competent student who has previously taken the course.

## What's an SI leader?

Have you ever wished you could do something over, knowing what you know now? SI leaders are students themselves and are prepared to share with you what they have learned over the years about how to study. They know the course content and are anxious to help guide you through it. They'll be in class with you every day, hearing what you hear and reading what you read. What they won't do is lecture; their job is to help you think about the lectures you hear and the books you read, and then put it all together during the SI review sessions. SI can help you learn course material more efficiently.

## When do SI review sessions start?

On the first day of class you will fill out a short survey to let the SI leader know your class schedule. Each SI leader will set up two review sessions each week at times that are best for the majority of students taking the class. You can attend one or both sessions (the choice is yours), and each one will be different because you'll have new material to discuss. SI review sessions are informal. Bring your notes; bring your textbook; bring your questions.

## What's in it for me?

If you attend SI sessions regularly, chances are you'll earn a better grade. You'll have developed a better understanding of course content as well as more effective ways of studying. This will help you in other classes also.

# Opening the SI Session

1. How will you arrange the room? Where will you sit?

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2. How will you introduce yourself to the group?

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3. How will you introduce SI to the group?

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4. How will you introduce the group members to each other?

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5. What will you do if students come to the first SI session and seem upset when you explain that you will not "tutor" them?

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6. How will you explain why participants need to sign in each time they attend?

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7. If a student comes in halfway through the SI session, will you still ask the student to sign in?

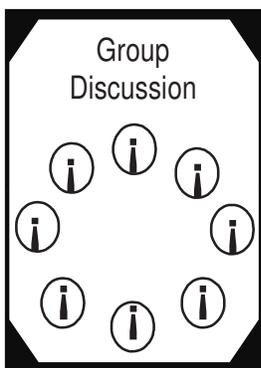
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8. What will you do if you only have one student show up for a session?

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9. What will you do if no one shows up for a session?

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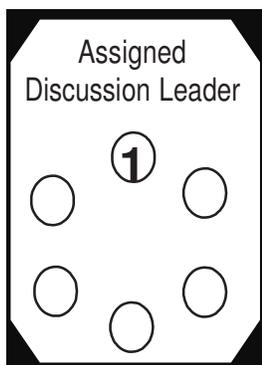


# Conducting the Session

Break into groups. Assign each person in the group one of the situations presented below and ask him or her to lead the group in a discussion about how he or she would handle it.

## What would YOU do in these situations?

1. When one person dominates the conversation of the group.
2. When students are having side conversations.
3. When all of the interactions in the SI sessions are between you and the students. There is no student-to-student interaction.
4. Every time you ask a question over the course content, the group becomes very quiet.
5. You have one student in the session who rarely talks.
6. If a student becomes confrontational and suggests the sessions are a waste of time.
7. Students who typically do not show up for sessions are being shunned by those who do.



**T**

## he Inside Scoop on *Conducting Sessions*

1. Running a successful session requires careful planning. Never go into a group intending to "play it by ear" or "answer questions."
2. Personally invite students to the sessions. Don't act insulted if they offer an excuse for not coming.
3. Maintain eye contact.
4. Build flexibility into the organization of the SI.
5. Don't feel tied to keeping up with the content. You don't have to "do something" with every bit of content provided by the instructor and the text.
6. It is more effective to "model" how successful students learn a particular subject than it is to "tell" students what they need to know.
7. Make use of the language of the particular discipline, course, and instructor.
8. Waiting for students to volunteer a well-developed answer takes time. If you are uncomfortable waiting for 30 seconds, join students in looking through notes or text.
9. If students are unable to answer the question, ask for the source of information. For example, ask for the date of the lecture that contained the information and search for the answer together. Avoid taking on the responsibility of always providing answers.
10. Encourage students to summarize the major concepts of the lectures. Let other students fine-tune the responses. If information is incorrect, ask students to find specific references in the text or notes that will clarify the correct answers.
11. Avoid interrupting student answers. SI should provide a comfortable environment for students to ask questions or attempt answers. Protect students from interruptions, laughter, or from those with louder voices.
12. Refer to the syllabus regularly. Check that students understand the requirements and dates of reading assignments, projects, and tests.
13. If your group has more than 12 students, divide into subgroups. Provide discussion topics that the groups can explore. Move from group to group, participating from time to time, reassuring the group that you are still there for them.

# Directing Discussion Back to the Group

Take turns practicing redirecting the questions below (or make up some of your own) with a partner.

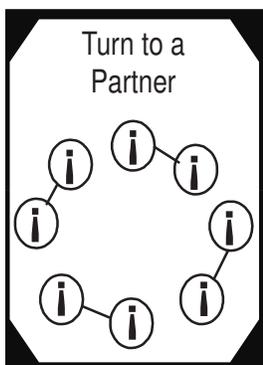
Hint: the phrases in the next column may be helpful.

## Questions for person # 1:

1. Are proteins amino acids?
2. What is meant by the term "dialectical materialism"?
3. When was the Neanderthal period?
4. Where is the headquarters for the United Nations?
5. What are descriptive statistics?

## Questions for person # 2:

1. What is the difference between organic and inorganic matter?
2. Who was William Blake?
3. Can you explain photosynthesis?
4. What is sickle-cell anemia?
5. What is the capital of Germany?



## Suggested Phrases for Redirecting Questions

- Does anyone know the answer to that question?
- Can anybody help Mary answer that question?
- Can anyone find the answer to that in your notes?
- Let's look that up in the book.
- What do you think about that?
- How would you say that in a different way?
- What are we trying to find out?
- What do you need to do next?
- How did you do that?
- What do you mean by . . . ?
- Tell us more...
- What else did they do?
- Anything else?
- Can you be more specific?
- In what way?
- What are you assuming?
- Why would that be so?
- How can that be?
- How would you do that?
- Are you sure?
- Give an example of that.
- How is that related to . . . ?
- Can you summarize the discussion up to this point?
- How does your response tie into . . . ?
- If that is true, then what would happen if. . . ?
- What would \_\_\_\_\_ say about that?
- Let's see if we can figure out how to answer it together.
- Can you think of another way to think about this?
- Would any of you like to add something to this answer?
- How is your answer (point of view) different from \_\_\_\_\_?
- How could we phrase that into a question to ask Dr. X next class?"
- What do we need to know in order to solve the problem?
- Which words in the question do you not understand?
- Let's rephrase it on the board and figure out what information we will need to answer it.

**T**

## he Inside Scoop on *Redirecting Questions*

One of the most important moments of an SI session happens when a member of the study group asks the SI leader a direct question. If the leader answers the question for the group member, SI sessions will soon be reduced to the SI leader answering questions and re-lecturing over the material. It is, therefore, critical to the overall goal of SI that questions be redirected to the group to be answered. This is more difficult than it sounds because it is counter intuitive not to answer a question to which you know the answer.

### Questions that Require Students to Think: It's All in the Verbs

**Level One: Knowledge** define—repeat—record—list—recall—name—relate—underline

**Level Two: Comprehension** translate—restate—discuss—describe—recognize—explain—express—identify locate—report—review—tell

**Level Three: Application** interpret—apply—employ—use—demonstrate—dramatize—practice—illustrate operate—schedule—shop—sketch

**Level Four: Analysis** distinguish—analyze—differentiate—appraise—calculate—experiment—test—compare contrast—criticize—diagram—inspect—debate—relate—solve—examine—categorize

**Level Five: Synthesis** compose—plan—propose—design—formulate—arrange—assemble—collect construct—create—set up—organize—manage—prepare

**Level Six: Evaluation** judge—appraise—evaluate—rate—compare—value—revise—score—select-choose assess—estimate—measure

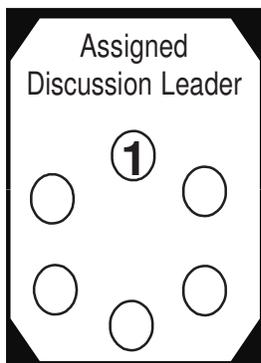
*Bloom, B. (1973). Taxonomy of Educational Objectives*

# Closing the SI Session / Reviewing for Exams

Break into groups. Assign each person in the group one of the questions presented below and ask him or her to lead the group in a discussion about the issue the question addresses.

## What do YOU think?

1. Why is it generally important to provide “closure” at an SI session?
2. If things are really going well during an SI session, should the SI leader stop to do “closure?” Why or why not?
3. Many SI leaders report they find it difficult to use closure techniques at an SI session because they run out of time. What recommendations can you offer to avoid this problem?
4. When is the best time to offer a review session for a major exam? Right before the exam or several days in advance?
5. How would an SI session that takes place before a major exam differ from a regular SI session?
6. If you have a two-hour marathon session before the exam, would you count this as one or two sessions?
7. What would you do if you typically have six to nine students show up for a session and twenty-five show up right before the exam?



**T**

## he Inside Scoop on *Closing SI Sessions*

### Closure Techniques

To ensure that students do not lose sight of the "big picture," reserve the last few minutes for reviews. During this time books or notes should not be used.

#### Technique #1: Informal Quiz

When time permits, the informal quiz will help students put all of the important ideas together. We have provided information about the *informal quiz* in the Strategies Section.

#### Technique #2: Predict Test Questions

Divide students into groups of two or three. Have them write a test question for a specific topic, ensuring that all major topics have been covered. Ask students to write their question on the board for discussion. This technique requires more time but the benefit is that students see additional questions which focus on the specific material that has just been presented.

#### Technique #3: Identify the "Big idea"

Ask each person to tell what he or she thought was the most important concept, idea or new understanding he or she learned during the session. We call these "take homes." That is, if they could only take home one thing from the information presented, what would it be? Ask each student to offer a different "take home." This technique can be useful if you're nearly out of time.

If there is sufficient time, have students organize the selected topics into more generalized concepts. We know that students frequently feel overwhelmed by the sheer volume of information that they have to deal with during the term. They need practice with organizing all of the information presented.

#### Technique #4: Predict the Next Lecture Topic

Have students predict the next lecture topic. See if there are connections between the last lecture and the next one. This activity helps to prepare them for new material, especially if it can be connected to information they have just mastered in the SI session.

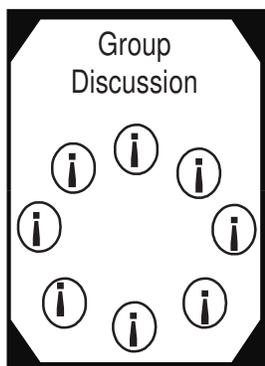
#### Technique #5: Summarize the Procedure/ Steps / Etcetera

Sometimes it is more important to go over *how* an answer was arrived at, rather than reviewing the answer itself. Remember to give time to the *process* of learning.

# Attendance Strategies

Select your “top three” strategies for improving attendance at SI sessions and discuss them with your group.

1. Report SI vs. non-SI test differences to the class
  - Test score averages
  - Amount of difference in scores
  - DFW and AB rates
2. Report test scores from previous academic terms. Use national data until you develop your own history of institutional data.
3. Distribute reminder handouts to attend SI sessions throughout the term.
4. Offer sample tests in SI sessions with questions developed with the instructor. The instructor could make these available in class with the comment that they will only be discussed during SI.
5. Report the number and/or percentage of test questions covered in SI sessions.
6. Provide time for regular verbal encouragements to attend SI sessions.
7. Use worksheets during SI sessions, especially in problem-solving courses. Even the use of empty matrix worksheets may encourage students to attend who need something tangible to take away from the SI session.
8. Post anonymous quotations from students on how SI has helped/is helping. Include some of these with the SI handout on the first day of class.
9. Write the daily SI times and locations on the board during each class.
10. Allow for discussions between the class and the SI supervisor when SI attendance is low.



11. Report improvement on test scores from previous terms.
12. Offer regular reminders from SI leaders in class on attending SI.
13. Offer something specific in SI sessions - a study skill, rules for problem solving, jeopardy, games, text review, etc.



# Part IV: Forms

## Supplemental Instruction Survey

Name: \_\_\_\_\_ Term: \_\_\_\_\_ Course: \_\_\_\_\_

Weekly SI sessions will be offered for students enrolled in this course. This survey will determine the most convenient times to schedule these sessions. Responses will be kept confidential, will not be released to the course instructor, and will in no way be used to influence your grade for this course. Please complete this survey even if you are not planning to attend the SI sessions. Thank you.

1. How likely is it that you will attend SI for this course?

very likely      likely      neutral      not likely      very unlikely

2. Have you attended SI sessions before?      yes      no

If yes, how useful did you find the SI sessions to be for helping you succeed in the course?

very useful      useful      neutral      not useful      harmful

3. Check one or more of the following reasons you are taking this course:

This course is required for my major.

This course satisfies an elective.

I am interested in this subject matter.

Other \_\_\_\_\_

4. What grade do you *expect* to make in this course: A B C D F

5. Please fill out the schedule below to help us determine the most convenient times to schedule SI sessions. Mark with an "X" the hours you know you would **NOT** be available for SI (work, class, etc.).

|              | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY | SATURDAY | SUNDAY |
|--------------|--------|---------|-----------|----------|--------|----------|--------|
| 8:00 A.M.    |        |         |           |          |        |          |        |
| 9:00 A.M.    |        |         |           |          |        |          |        |
| 10:00 A.M.   |        |         |           |          |        |          |        |
| 11:00 A.M.   |        |         |           |          |        |          |        |
| NOON         |        |         |           |          |        |          |        |
| 1:00 P.M.    |        |         |           |          |        |          |        |
| 2:00 P.M.    |        |         |           |          |        |          |        |
| 3:00 P.M.    |        |         |           |          |        |          |        |
| 4:00 P.M.    |        |         |           |          |        |          |        |
| 5:00 P.M.    |        |         |           |          |        |          |        |
| 6:00 P.M.    |        |         |           |          |        |          |        |
| 7:00 P.M.    |        |         |           |          |        |          |        |
| Late Evening |        |         |           |          |        |          |        |

# End-of-Term Supplemental Instruction Survey

(This information is for research purposes only, and will in no way influence your final grade.)

Course Name: \_\_\_\_\_

Your Name: \_\_\_\_\_

Term: \_\_\_\_\_

**Please fill out only the side of this survey that applies to you.**

**If you attended even one SI session, please fill out this side.**

1. How helpful were the sessions to you?

1    2    3    4    5  
not helpful                      very helpful

2. What grade do you expect to make in this course?

A    B    C    D    F

3. How many sessions did you attend?

1-2    3-5    5-10    more than 10

4. If you have any comments on the sessions and/or suggestions for improving future sessions we would appreciate having them. Use the back of the page if needed.

5. If you are interested in becoming an SI leader for this or other courses please provide us with the following information:

Name \_\_\_\_\_

Address \_\_\_\_\_  
\_\_\_\_\_

Phone \_\_\_\_\_

Course(s) \_\_\_\_\_  
\_\_\_\_\_

**If you did not attend any SI sessions, please fill out this side.**

1. Please check the reason(s) you didn't attend any sessions.

I wanted to but couldn't. The session schedule conflicted with work or other classes.

I didn't feel it was necessary.

I have been to similar kinds of study sessions for other courses and did not find them helpful.

I have been to SI sessions for other courses and did not find them helpful.

I intended to, but couldn't find the time.

Other. Please explain, using the back of the page if needed.

2. What grade do you expect to make in this course?

A    B    C    D    F

3. Did you fill out the time schedule questionnaire for SI sessions at the beginning of the term?

Yes    No    Can't remember

# SI Sign-in Sheet

SI Leader: \_\_\_\_\_ Course: \_\_\_\_\_

Date: \_\_\_\_\_ Day: Mon Tue Wed Thu Fri Sat Sun

Time Session Began: \_\_\_\_\_ Time Session Ended: \_\_\_\_\_

Is this the final session before an exam? yes no If yes, exam # \_\_\_\_\_

## Please Print Clearly

- |           |           |
|-----------|-----------|
| 1. _____  | 14. _____ |
| 2. _____  | 15. _____ |
| 3. _____  | 16. _____ |
| 4. _____  | 17. _____ |
| 5. _____  | 18. _____ |
| 6. _____  | 19. _____ |
| 7. _____  | 20. _____ |
| 8. _____  | 21. _____ |
| 9. _____  | 22. _____ |
| 10. _____ | 23. _____ |
| 11. _____ | 24. _____ |
| 12. _____ | 25. _____ |
| 13. _____ | 26. _____ |

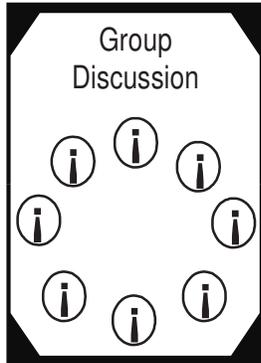


# Self-Test for SI Leaders

1. Which of the following best describes the SI program?
  - a. service for high-risk students
  - b. students come to the learning center for help
  - c. tutorial instruction
  - d. workshop on study skills
  - e. service for all students
2. Supplemental Instruction is designed primarily to assist students in mastering which of the following:
  - a. general study skills
  - b. reading
  - c. English
  - d. reasoning
  - e. course content
3. The SI leader is most accurately described as which of the following?
  - a. tutor
  - b. peer counselor
  - c. teaching assistant
  - d. model student
  - e. instructor's assistant
4. Students who obtain which of the following grades are considered unsuccessful enrollees?
  - a. F
  - b. D
  - c. Withdrawal
  - d. F and D
  - e. Withdrawal, D and F
5. Which of the following factors makes a **significant contribution** to the **impact** of SI?
  - a. the service is attached to the department
  - b. the SI is viewed by students as being enjoyable
  - c. SI review sessions are designed to promote student collaborative learning
  - d. SI leaders are trained in the content areas
6. SI leaders' responsibilities include all of the following **except**:
  - a. taking notes
  - b. reading all assigned and supplementary material
  - c. previewing the test with the professor
  - d. scheduling and running SI sessions each week
  - e. attending all class sessions
7. Which of the following statements most accurately describes the role of an SI leader?
  - a. the SI leader is primarily responsible to the department
  - b. the SI leader relates individual student problems to the professor
  - c. the SI leader is a tutor
  - d. the SI leader is a near peer
8. Which of the following actions should not be taken by an SI leader?
  - a. ask the professor how the course is organized
  - b. ask the professor for a copy of the course syllabus

- c. ask the professor how the course is graded
  - d. ask the professor for permission to grade tests
9. Which of the following statements concerning SI sessions follows the SI model?
- a. cancel an SI session if only 1 or 2 students show
  - b. redirecting questions to the group, rather than having the SI leader answer all questions
  - c. hand out SI material to the entire class
  - d. cover all of the information presented in the lecture
10. What is the ideal size of an SI group?
- a. 1-5 b. 5-10 c. 10-15 d. 15-20
11. When SI sessions grow beyond an ideal number you should:
- a. break large groups into small groups
  - b. consider adding additional sessions
  - c. consider hiring more than one SI leader for the class
  - d. provide the SI leader with additional training on working with multiple groups
  - e. all of the above
12. The ultimate goal of SI leader training is **best** represented by which of the following statements?
- a. to make the SI leader autonomous by the first day of class
  - b. to teach the SI leader study skills techniques
  - c. to give the SI leader a general overview of the program
  - d. to have the SI leader understand how typical students learn
  - e. to have the SI leader understand how to integrate study skills and content
13. The primary purpose of clinical supervision is:
- a. to check up on the SI leader
  - b. to evaluate the SI leader
  - c. to evaluate the SI program
  - d. to provide training for the SI leader
  - e. all of the above
14. Which statement best describes the reason(s) students might attend SI?
- a. to improve grades
  - b. to learn more
  - c. to improve grades while reducing work load
  - d. to socialize with friends
  - e. all of the above
15. The SI leader is ultimately responsible to:
- a. the SI Coordinator
  - b. the faculty member
  - c. the students
  - d. the department
  - e. all of the above

# Collaborative Learning Techniques



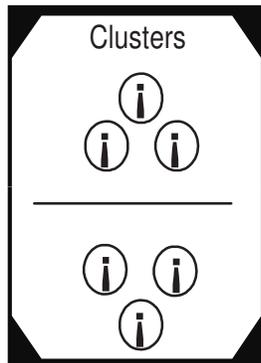
## Group Discussion

A group discussion is, more or less, just like it sounds: a general discussion of an issue or topic by the group. Individual members are free to contribute or not contribute.

### Hints

This is the most common form of collaborative learning. It is also the form that requires the most skill to use successfully.

Ideally, everyone is actively involved in the discussion and the discussion topic is of equal interest to all group members. When group discussion is successful, it may be difficult to determine who is actually leading the discussion.



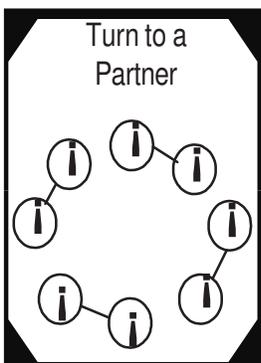
## Clusters

In *clusters*, group participants are divided into smaller groups for discussion. They may also be allowed to self-select the small group they want to be in. After discussing the assigned topic the cluster may report their findings to the large group.

### Hints

If possible, see that each group is provided a flip chart or a space on the blackboard to record the important points of their discussion.

Allow time for each group to report back to the large group. You may have to assign someone from each group to report back.



## Turn to a Partner

Group members work with a partner on an assignment or discussion topic.

### Hints

This technique works best with group participants who have already been provided with enough background on a subject that they can immediately move to a discussion with their partner without previewing or reviewing concepts.



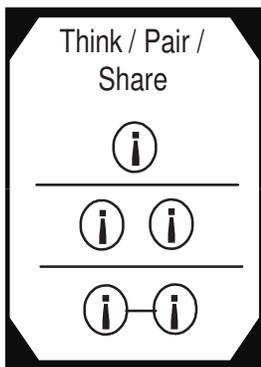
## Assigned Discussion Leader

One person in the group is asked to present on a topic or review material for the group and then lead the discussion for the group. This person should not be the regular group leader.

### Hints

When assigning a discussion topic to individual members of the group, you may need to be prepared to allow a little time for the person leading the discussion to prepare for the discussion.

This technique works best when everyone or nearly everyone in the group is given an assignment to be the "expert" on.



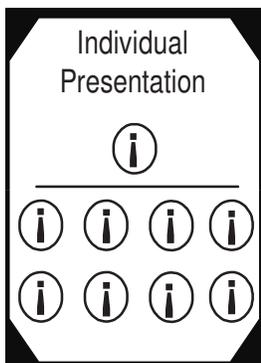
## Think / Pair / Share

Group members work on an assignment or project individually and then share their results with a partner.

### Hints

The goal of a Think/Pair/Share is allow participants time to think BEFORE they discuss. Research shows that when people are given time to contemplate an answer to a question, their answers differ from those they would give if they responded immediately.

When doing a Think/Pair/Share, give participants a specific amount of time (30 seconds, five minutes, etc.) for the "think" portion.

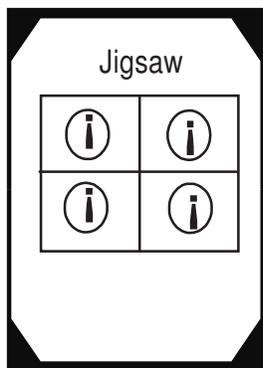


## Individual Presentation

An individual presentation is an uninterrupted presentation by one person to the group. Group members present on a topic, question, or issue to the group. Unlike an "Assigned Discussion Leader" this is a formal presentation delivered to a captive audience.

### Hint

*Individual presentations* should typically be used sparingly and only when independent research is required.

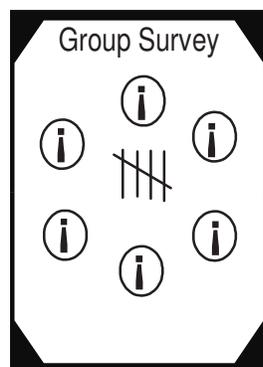


## Jigsaw

*Jigsaws*, when used properly, make the group as a whole dependent upon all of the subgroups. Each group provides a *piece of the puzzle*. Group members are broken into smaller groups. Each small group works on some aspect of the same problem, question, or issue. They then share their part of the puzzle with the large group.

### Hints

When using a *Jigsaw*, make sure you carefully define the limits of what each group will contribute to the topic that is being explored.



## Group Survey

Each group member is surveyed to discover his or her position on an issue, problem, or topic. This process ensures that each member of the group is allowed to offer or state his or her point of view.

### Hints

A survey works best when opinions or views are briefly stated. Be sure to keep track of the results of the survey.

# Part V: Polishing Session Strategies

## Lecture Review

1. During the first 10-15 minutes of the SI session have the students summarize the most recent lecture or have them identify the key words from that lecture.
2. Give students three minutes to find support in their lecture notes for a given generalization.
3. Have the students predict the direction of future lectures based upon the past lectures.
4. Have students arrange terms from lecture and text into a structured outline.
5. Reinforce new terms or important information by using clearly constructed handouts (can be complete or nearly complete at the beginning of the term but should gradually require more and more filling in as the group becomes more accustomed to working together).
6. Review material from previous sessions and lectures.
7. Take a couple of minutes at the end of the SI session to summarize the main idea covered during the session. Ask the students to help summarize.
8. Have students write a one-paragraph summary of the lecture. List the new vocabulary terms introduced with this lecture.
9. Formulate potential exam questions, based on the main ideas from the lecture.
10. Formulate potential answers from details in the lecture notes.

# Oral Reading of Lecture Notes

Note review is a good strategy to use early in the academic term. Why?

- Students see the importance of taking comprehensive notes.
- Students can fill in the gaps in their notes, as well as clear up discrepancies and misinformation.
- Each student in the session has a chance to participate.
- SI leaders highlight and discuss the language of the discipline, the new vocabulary. Students identify meaningful examples and check for understanding.

## Procedure

1. Tell the group that you will begin reading from your lecture notes and will ask the student on your right or left to pick up where you stop. Let them know that the role of reader will move to each student in the circle.
2. Look at the students and encourage them to let everyone know if something is left out or inconsistent with what they have recorded. To note inconsistency does not mean that someone is necessarily right or wrong; moreover, members of the SI group will discover how to remedy the problem through the following resources:
  - Ask the student who disagrees to read from his or her notes.
  - Ask the group if their notes compare.
  - Check in the textbook for support; add the page reference to the notes.
  - If a consensus is not reached, work with the students to formulate specific questions to ask the professor in the next class.
3. The pressure of reading may unnerve a student who believes that his or her notes are too rough to read. Since reading aloud is a form of performance, some students may be reluctant. Gently encourage the student, but if he or she is not comfortable, don't push. Perhaps note-taking skills and confidence will improve as the term progresses and the usefulness of good notes becomes apparent.
4. As you approach the end of the SI session and material has not been discussed, suggest to members of the group that they should finish reading through their notes. If they have questions or blanks in their notes, tell them to work with another student to find the answers or to bring these questions to the next SI session. If time does not permit the discussion of major concepts or vocabulary, draw attention to them. Encourage students to read over the items in their notes and to use the text to supplement their notes.

# Incomplete Outline

The Incomplete Outline is an excellent means of helping students recognize the main points and the organizational pattern of information given in lecture. It can also be used for textbook information. Determining the major points can help to sort information and locate the ideas being communicated, making connections easier to find and understand. It helps the students to figure out what's important.

## Procedure

**Step 1:** Point out that the main points might not be clear from a specific lecture (or series of lectures) and present to the group an outline with some of the parts missing.

For example: Aspects of Medieval Life

I. \_\_\_\_\_

II. \_\_\_\_\_

III. \_\_\_\_\_

**Step 2:** The group must then work through their notes to figure out how to fill in the outline.

Note: This activity is an excellent way to gradually promote group independence. At the beginning of the term, provide outlines that are nearly complete with some of the items filled in and all of the numbers and letters filled in. As the term progresses make the outlines more and more incomplete, putting in fewer and fewer entries, then eliminate the notation. By the end of the term, students should be able to complete their own outlines without assistance.

*Adapted from Onondaga Community College, Syracuse, New York*

# The Matrix

A **matrix** is used when the same types of information are provided in the notes or text for a set of topics. A matrix helps students organize information by showing its relationship to similar categories of information.

## Colonization

|         | Religious | Economic | Political |
|---------|-----------|----------|-----------|
| Dutch   |           |          |           |
| English |           |          |           |
| French  |           |          |           |
| Spanish |           |          |           |

## Sample Vocabulary Matrix

| Term      | Paraphrased Definition   | Example from Lecture | Example from Textbook    | New Example                                |
|-----------|--|----------------------|--------------------------|--|
| oligopoly | a market where a few firms produce all or most of the market supply of a good or service | airlines             | soft drink manufacturers | domestic car makers (G.M.; Ford; Chrysler) |
| monopoly  | a firm that produces the entire market supply of a good or service                       | Niagara<br>Mohawk    | none                     | New York telephone local service           |

*Adapted from Onondaga Community College, Syracuse, New York*

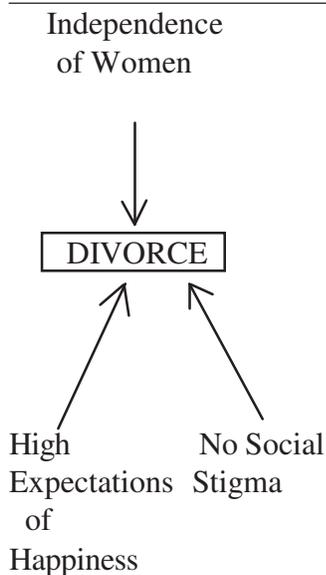
# Visual Techniques

Some students learn well by creating visual study aids. This type of learner may actually picture the page of notes when answering essay questions on a test. Therefore, notes that are clear, concise and well organized are essential. There are a variety of ways to summarize notes in a few words.

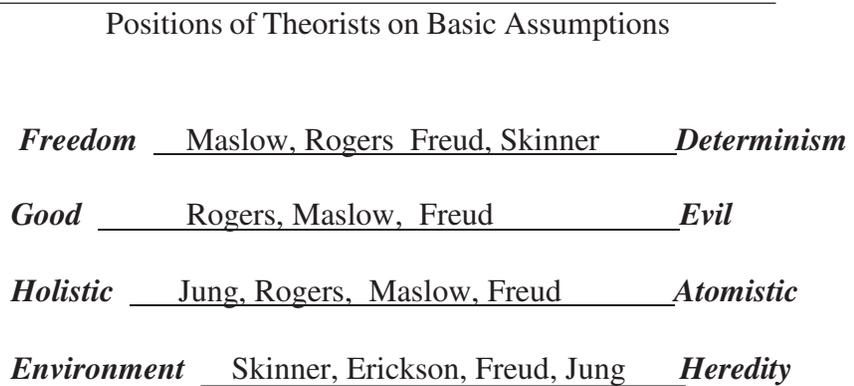
Some of these techniques include mapping, and picturing. The best visual techniques do more than just condense notes; they help students understand the relationship between topics covered in various lectures and provide a "big picture." Students who simply memorize their notes as if they contained a series of several hundred unrelated facts may easily miss the point. Visual techniques help pull the ideas together.

**Mapping** and **picturing** are used to draw a picture of the concept presented verbally in the lecture. The relationships between the topics are stressed in the map by the use of arrows. There are many types of mapping and picturing techniques. Two are shown on the following page. These must be adjusted to the subject matter. The key idea is to visualize the information and to use as few words as possible.

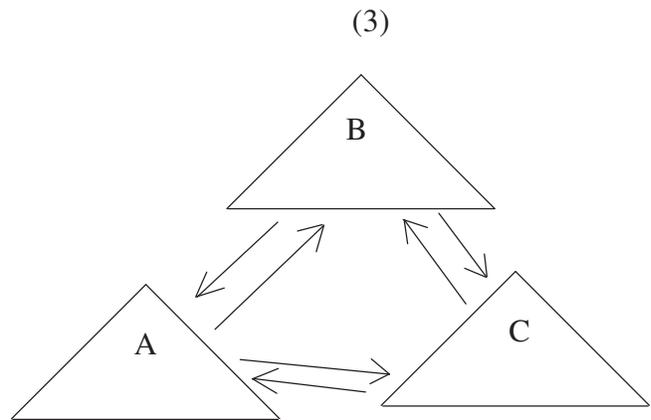
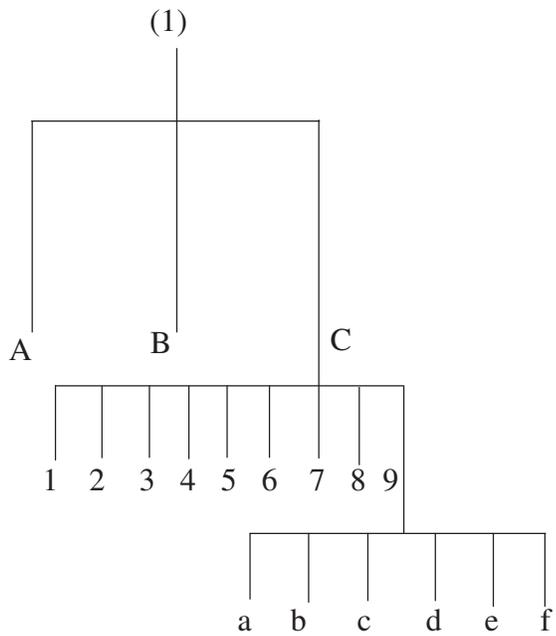
## Mapping:



## Picturing:

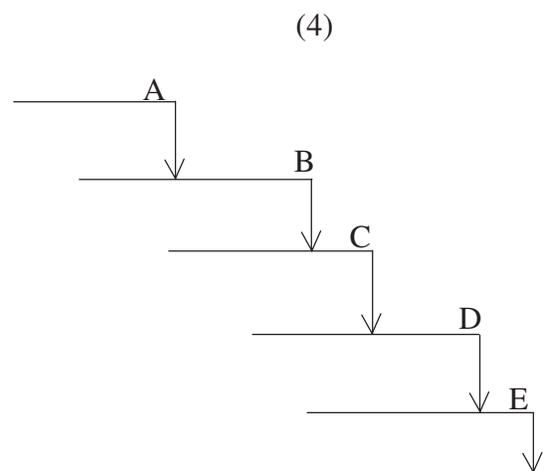


Identify courses or disciplines in which these visual models might be useful.



(2)

|   | a | b | c | d |
|---|---|---|---|---|
| 1 |   |   |   |   |
| 2 |   |   |   |   |
| 3 |   |   |   |   |
| 4 |   |   |   |   |



# The Informal Quiz

The Informal Quiz is a procedure, used in small group study sessions, which is educationally compatible with the goals and objectives of SI. Although the title implies a testing tool, this quiz is not intended to be used as a method of formally evaluating student work. The focus is on learning rather than grading. In general, the Informal Quiz is used to develop and reinforce comprehension, improve retention of information, stimulate interest in a subject area, and promote student participation in the study session. More specifically the Informal Quiz enhances an educational experience in the following manner:

1. Allows weaker students to participate equally with stronger students, in the same session, since questions are designed to have more than one correct answer.
2. Permits each student an opportunity to demonstrate competence. Allowing the random answering of questions, it lets the shy or unsure students volunteer to answer the one or two questions for which they have answers.
3. Promotes student self-testing of their comprehension level.
4. Provides the SI leader an opportunity to reinforce student participation.
5. Allows students to work with test material in a cooperative rather than competitive way.
6. Facilitates students' ability to interpret, answer and predict test questions.
7. This is a nonthreatening activity because of SI activity features:
  - a. everyone is writing, even if they do not know the answer, since they can write down the question instead;
  - b. the activity uses scrap paper;
  - c. paper is not turned in or seen by other students.
8. Provides a mindset for the SI session.

The goals may appear to be excessive for what is feasible within an SI session; however, these goals can be accomplished in a small way each time the procedure is used. The informal quiz frequently is used at the beginning of the session. The whole procedure may take no more than 10 to 15 minutes. However, the discussion generated by one or more questions may become the focus of the SI session.

## The Informal Quiz Procedure

1. Use scrap paper or half sheets.
2. Ask a majority of questions requiring short multiple answers; e.g., "Name one of the three ways to...."
3. Focus on current material but include two or more concepts the instructor will want the students to understand.
4. Most questions should not be difficult, but should emphasize recall of key points or of minor points related to key points. One, or perhaps two, questions should require use of higher-order thinking skills.
5. Questions on familiar material can be varied, e.g., the following:
  - (a) "The answer is \_\_\_\_\_; what is the question?"
  - (b) "I can't think of any more. Does anyone have a question I might have asked?"
6. If there are students who aren't writing answers, say, "If you don't know the answer, write the question so you will remember what it was you didn't know."
7. In answering questions, ask who would like to answer a question-any question. Starting with any question instead of the first question contributes to the informality of the quiz and allows a student who only answered a few questions accurately to participate immediately.
8. Call on the weaker students first, whenever they have raised a hand.
9. Restate the question before the answer is given.
10. If possible, find something complimentary to say about wrong answers. "That's a very good guess. If I weren't sure, I might have guessed that." Don't let wrong answers stand.
11. Keep it light and short. Ask a maximum of ten questions.

# Vocabulary Activities

All disciplines have technical terms which have precise definitions in that subject matter, and may mean something quite different in another context. One of the purposes of most introductory courses is to teach students to speak “the language of the discipline.” Therefore, a clear understanding of the technical vocabulary in the course is essential for the students in your study group. Students must be able to do more than simply “parrot back” rote definitions of terms. They must be able to paraphrase the meaning of the term, understand how it fits in with the topic under discussion.

## Vocabulary Activity Goals

1. Identify key technical terms in their notes and text and be able to generate a precise definition.
2. Paraphrase the definitions in their notes and text.
3. Understand the relationship between one term and other key terms which fall under the same topic.
4. Create a parallel example to the one given in the notes or text.
5. Be comfortable enough with the terms to “speak” the language of the course, both in the group and on tests.

## Procedure

Here is a list of suggestions for working with course vocabulary in study groups:

1. Don't “translate” - use the term yourself. For example, if a student in an economics SI were to talk about “product satisfaction,” the SI leader might ask, “And what is the economic term that means satisfaction?” Then, the student will use the economic term “utility,” rather than the equivalent translation, satisfaction. Remember, on essay tests one of the things instructors looking for is whether the students can use terms correctly.
2. Before a test, create a handout to help students identify terms in their notes by passing out red pens and suggesting that they circle all key terms in red. Then, have one of the students record the complete list on the board. Put students in groups of two or three. Ask that they refer to their definitions of all of the terms and pair together terms that they feel are connected in some way. Then, report back to the larger group.

3. Create a vocabulary matrix. Get students to work together to fill in the matrix (see example below). One student can work with lecture notes and the other with the text. They may also work together to create the new example.

| Term | Meaning | Example from Notes | Example from Text | New Example |
|------|---------|--------------------|-------------------|-------------|
|      |         |                    |                   |             |

4. Create vocabulary note cards for a quick review.
5. When appropriate, introduce the meaning of Greek or Latin roots that will help students remember their technical terms. For example, in sociology, students who know that the root “gam” means “marriage” have an advantage on a test question which asks about “exogamy”. A good way to present key roots is to put the root on the board and then ask students to name as many words as they can think of that come from the root.

**Example:** “GAM”--bigamy; polygamy; exogamy; endogamy; monogamy

Ask what the words all have in common. This way the group figures out the meaning of the root themselves. They can use this same procedure once they become proficient when faced with an unfamiliar word on a test or in a textbook.

#### Vocabulary

#### Summary

1. Continually use and review vocabulary words from previous lectures and from the text.
2. Have students predict vocabulary words that might be used in a lecture from text readings.
3. Work with students on **application** of terms. Instead of saying “What does \_\_\_\_\_ mean?”, say “Here is a situation....This is a good example of what?”

# Time Lines

Time lines can be an effective way to show a continuum of events or ideas. Students can use time lines as a frame on which they can hang additional information.

## Double Time Lines

It is important that students understand the relationship between new material they are learning and what they already know. A historical perspective on key dates in the notes and text can be very helpful. For example, if a Psychology instructor mentions a study which was completed in Germany in 1939, the student should automatically place this information in the context of Nazi Germany. More recent information can often be related to events in the student's own life to make it more meaningful.

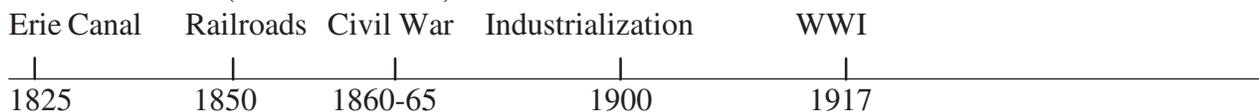
## Procedure

Make sure that the dates are truly important before using this procedure. Then, make a brief, very general time line of events happening in the U.S. and/or world at approximately the same time as the dates presented. Give this general time line to the group at the beginning of the session.

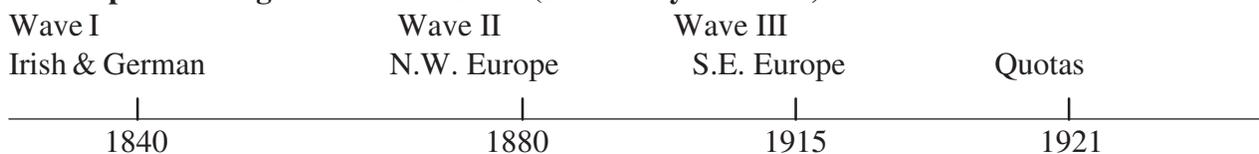
Then, have the students draw a duplicate time line directly below the one they have previously constructed. They should work in pairs to find key dates from the notes and text and place them on the new line. Discussion should center on events which were happening at the same time as the dates which were presented in class.

## Samples

### 1. U.S. Events: (Initial time line)



### 2. European Immigration to the U.S.: (Secondary time line)



# Preparing for Exams

Often students become anxious simply by the language of the question. It is important that students in your group begin to develop the skill of predicting test questions. Once they discover that the origin of test questions is not always mysterious, they will feel much more confident going into their test. You can help students develop this confidence and skill by creating practice exams in the study groups. This type of activity is good shortly before an exam when you have a large number of non-regular participants in the study group. Plan to work together to create study sheets for each predicted question at the next study group before the test.

## **Review Dates**

The dates of exams should be reviewed regularly so that students are reminded to start studying early.

## **Identify Exam Format**

Discuss with the students the kinds of questions to expect on exams. Also explore the amount of emphasis that will be placed on the text, lecture, outside readings. For example, one half of the points are earned through multiple choice items that focus on information from the lecture and text; the other half of the possible points are earned through two essay questions that focus on the supplemental readings, the assigned novels.

## **Develop Practice Exams**

Have students submit 3 to 5 questions. These questions can be assembled into a practice or review exam and returned to students for study. If appropriate, periodically offer practice essay questions. Ask students to outline the answer first. Initially, have the students use their book and lecture notes, but work toward a normal test situation. Provide sample summary sheets for each exam which provide less and less information, thus forcing students to progressively become more and more independent and able to write their own summaries. The first summary sheet could be written by the SI participants as a group. If the professor distributes a sample question or has a file of previous tests on reserve in the library, discuss the wording of the question in SI.

## **Use Practice Exam in the SI Session**

Ask the instructor to look over questions and make suggestions. With the instructor's permission, announce to the class that the practice exam will be used in the next SI session. If possible, ask the professor to suggest that students take the practice exam.

# Math SI Sessions

## Structure the SI Sessions

At the beginning of the academic term, SI leaders must provide structure to the SI sessions; don't expect to arrive at SI sessions with the intention of "answering questions." You may want to write an agenda of the session on the chalkboard for each session.

## Syllabus

Review the syllabus with the students early in the academic term. Take note of the homework assignments, exam dates, and grading policy. Is the homework graded? If it is graded, announce that you are not allowed to work homework problems, but that problems similar to the homework will be discussed and worked on during the SI sessions.

## Pre-lecture Notes

Use the titles on the syllabus to guide you to what are the important parts of the text chapter. Note which problems are assigned as homework.

Look at chapter headings, subtitles, diagrams and captions, and scan the text briefly. When appropriate, turn the headings and subtitles into questions and make a brief outline of what is being presented. In the margins of your outline, list significant terms and attempt a brief definition. Say the terms out loud. Leave space in your outline so that you will have room to incorporate lecture notes with your pre-lecture notes. Try taking your pre-lecture notes from the text in one color of ink and lecture notes in another color of ink. Be sure to read the chapter summary.

During the lecture, add the pre-lecture notes to the class lecture notes. Work the problems along with the instructor. After the lecture, work homework problems which relate to the activity. Re-read the text book sections which apply.

## Lecture Notes

During the first week, talk about lecture notes in the math course. If possible, look around the room during the lecture to see how students are reacting to the material being presented. For example, if the professor is discussing graphs, the students may have difficulty copying the graphs while taking notes about them. You may want to distribute copies of your lecture notes one time so that students can see your strategies for note taking. This can provide a basis for a discussion of note-taking skills.

During the discussion on note taking, you can suggest that they use the Cornell method of note taking. This system makes use of Summary Margin paper or graphic paper with a three-inch margin on the left-hand side for important notations. You can also share, for example, how you concentrate on what the instructor is doing, and how to get as many details as possible without getting distracted by trivia. Students will see the benefit of using Summary Margin paper when you suggest they take notes during the SI sessions in the margin of their lecture notes. Encourage students to rewrite their lecture notes as soon as possible after the lecture. Remember to ask for other students to share their strategies as well.

## **Textbook**

Share with the students your method for reading the textbook. Focus on the different parts of the chapters: sample problems, new symbols and vocabulary, discussion and homework problems.

## **Strategies**

Math SI sessions focus on getting students to work on problems. We encourage SI leaders to have the students first write problems on the board. Then ask students, "What do we do first?" or "Where do we start?" Promote interaction and encourage students to help each other. For example, to start the session, have students work a word problem or statement problem for about five minutes. Then have them pair up and discuss the problem. This technique helps students discover different ways to work similar problems while helping each other. SI leaders need to help students see the progression of mathematics. For example, the SI leader might point out that a student will see a new application for a familiar concept when moving from Algebra to Calculus.

## **Worksheets**

Develop worksheets for use during the SI sessions which help generate discussion, focus on key concepts, and allow students the opportunity to easily identify their weaknesses. Worksheets also help students review for exams and allow the SI leader to guide students to consider math problems that are most representative of the key concepts that the professor wants the students to learn. It also allows the SI leader to work out the solutions to the problems ahead of time.

# Problem-Solving SI Sessions

Problem-solving courses like chemistry, physics, or mathematics are major obstacles for many students. Students often don't know to how to begin to attack a problem or do not know what to do when they encounter difficulty in the midst of finding a solution.

Many college instructors do not have time to present problem-solving strategies in class. In general, SI creates a "safe haven" for students to learn general problem-solving skills.

In SI sessions, attendees help each other by actively exchanging strategies for problem-solving. Students need to become part of a *collaborative, mutual-help team, attacking a common problem and solution together by pooling resources*. When students get stuck, the manner in which SI leaders handle the situation determines whether the student gains an understanding of the process or merely gets a right answer.

A model of board work that facilitates a process understanding of problem-solving strategies in chemistry is presented below. It shows how four types of information are placed on the board as problem-solving is modeled in an SI session.

This model employs essential components for understanding neatness, orderliness, logical development and visual models. Well organized board work in SI sessions is crucial in helping students understand how to solve specific problems.

| <b>Chalkboard Model</b>   |  |   |  |
|---|--|---|--|
| PREREQUISITES   | STEPS IN THE SOLUTION  | RULES   | SIMILAR PROBLEM  |
| <p>This first step includes relevant <i>equations, formulas, charts, and general rules</i> for solving this type of problem, along with the source.</p> <p>For example:</p> $\% \text{ yield} = \frac{\text{actual}}{\text{theoretical}}$ | $\frac{\text{XXXX}}{\text{= XXX}} \quad \frac{\text{XXXXXX}}{\text{XXX}}$ <p>The SI leader or the student(s) model the solution step-by-step with <i>what is done in each step of a solution and why it is done</i>.</p> <ol style="list-style-type: none"> <li>1</li> <li>2</li> <li>3</li> <li>4</li> <li>5</li> </ol> | <p>Here, a narrative description of what is done in each step of a solution is written down.</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> </ol> | $\frac{\text{XXXX}}{\text{XXX}} \quad \frac{\text{XXXXXXX}}{\text{XX}} =$ <p>Here, students check their understanding using prerequisites, steps in solutions and rules as learning aides.</p> <ol style="list-style-type: none"> <li>1.</li> <li>2.</li> <li>3.</li> <li>4.</li> <li>5.</li> </ol> <p>Answer and a source for the verification of the answer.</p> |

SI leaders use the board work model when (1) students don't know how to solve a problem, (2) students are stuck within a problem/solution, or (3) to check student understanding of how to solve each type of problem. This type of board work model includes the following:

1. SI leaders need to model the value of learning and using prerequisite information like formulas, equations, charts and general rules in solving each type of problem. Students need to see the sources of information for answers and for solutions to each type of problem.
2. Students see models of how to solve each type of problem as SI leaders or students think through, verbalize and write out solutions that include explanations of what and *why* something is done *step-by-step*.
3. At any point in the modeling process, allow students to ask questions.
4. Rules for solving each type of problem are written in narrative form on the board. This allows students to utilize verbal skills in understanding problem-based courses as well as quantitative skills.
5. Students need to be given a chance to practice and/or check their understanding of how to solve a problem by doing a similar problem of their own.
6. SI leaders must avoid re-lecturing or simply telling students how to solve problems. This has little value in helping students understand problem-solving processes.
7. Numbering each step is a great help to students because they can clearly identify each step in an actual solution. When students break problem-solving down into the component steps, they can more easily pinpoint gaps in understanding, ask informed questions about the problem-solving process and practice their current understanding of the problem-solving process to enhance clarity.

*(Adapted from "A Model for Supplemental Instruction in Introductory Chemistry" by Dennis H. Congos in SI News, Summer, 1993)*

# Humanities SI Sessions

## Differences

The humanities provide a way of seeing and knowing which is different from the sciences. In the sciences, students learn to use words like: *reliability, verifiability, clarity, empirical evidence, correspondence with natural laws, research methods, graphic presentation*. In the humanities, students are more likely to encounter words like: *ambiguity, uncertainty, intuition, insight, self-knowledge, truths, process, symbolic representation*. In the humanities, aesthetic forms—such as image, sound, dance, narrative—lead to understanding rather than empirical research.

## Elaboration Rather Than Reduction

Scientific method is predicated on the assumption that truth may be discovered independently of “context” or “time.” Physicists, for example, are used to having a high level of certainty, and may find it difficult to pick out what is important in a literature class. Knowledge in physics is arranged vertically (certain things must be learned before others), whereas knowledge in the study of literature is not as vertical and the order in which one takes the courses may not be important.

The tendency for science professors is to simplify complex ideas, while literature professors tend to favor probing for complexity. Professors in the humanities complain that students want certainty rather than enjoying the struggle with complexity. Even the artist who occupies a central position in his or her own discipline may struggle with the issues of certainty and judgment. Students are not comfortable with questioning ambiguities, and lack a map or framework from which to build judgments. SI leaders must help students move beyond simple answers in the humanities. The leaders need to design sessions that encourage elaboration rather than reduction of information. Students may struggle with the fact that, while there may be no one right answer, just any answer will not do either.

## Reliance on Language

Talk is the method of presentation most prevalent in the humanities. Language is valued; a well-turned phrase is applauded. In humanities classes there may not be much information written on the black board, and in the textbooks there may be few illustrations or diagrams. This lack of visual presentation may be disconcerting for those used to having it. Because so many lectures in the humanities rely on words, SI sessions need to provide visual models. These visual models should help show how concepts are related to each other.

Because the content of the humanities is particular, students must pay close attention to what is said, how it is said, and by whom it is said. Students new to the discipline may not pay sufficient attention to the author of a statement. Professors frequently summarize various scholars' positions, but students may not write down the name of the scholar or critic, and then when asked to discuss a position that is identified by the scholar's name, they cannot do so.

## Original Thought

Students who expect to do well in the humanities should, as one professor of literature said, find out all that is out there and then write something different. SI leaders must help students to develop positions that go beyond, "I like it" or "I feel good about this text." Beginning students may feel that they cannot write anything new about the text, and thereby, have trouble writing anything at all. Or they may feel their arguments must agree with the professor, not appreciating that the professor often welcomes an opposing point of view which is clearly developed.

## Writing Skills

Writing itself can pose special challenges for students in the humanities. SI in the humanities is often attached to a course in which students are graded and tested by essay (either essay exam or papers) because the course material requires more than recognition of knowledge of the material.

When writing is intensive, the SI session must respond with appropriate help in order for students to succeed. Although the SI session is not the place for one-on-one help with individual writing problems, it is a place where ideas can be generated and where students can practice predicting and answering possible test questions.

One way this works well is to create a question, then ask students to brainstorm all the ideas and facts they know about the question. Students can put similar ideas together and state which facts support the ideas. The group can then write the first sentence or two of the proposed essay. Individuals can be encouraged to finish the practice essay on their own, and read them to each other.

*Condensed from "Supplemental Instruction in the Content Areas: Humanities" by Sandra Zerger in Supplemental Instruction: Increasing Achievement and Retention (Deanna C. Martin and David R. Arendale, editors) Jossey Bass Publishers, Number 60, Winter 1994.*

# Post-Exam Survey

Following are some questions students might like to think about after taking an exam. Answers to these questions could help them focus on effective exam preparation strategies. Research suggests that each student has his or her own pattern of the types of errors he or she commits during examinations. Helping students to self-discover those patterns will help them to self-correct. One goal is to identify correct answers and associate them with study skills that worked for the student or identify incorrect answers and discover study skills that might be helpful.

1. Which part of the exam was the easiest for you? Why?
2. Which part of the exam was the most difficult? Why?
3. Which of the following activities did you complete prior to the exam?
  - a. All required reading assignments.
  - b. Preparation and review of reading notes.
  - c. Review of lecture notes.
  - d. Self-testing of material to be covered by the exam.
  - e. Prediction of possible questions by you prior to the exam.
  - f. Study with friends.
  - g. Others.
4. Which of the above did you find most helpful in preparing for this exam?
5. How much time (in hours) did you spend preparing for the exam?
6. Did you feel prepared when you walked into the exam? Why or why not?
7. What changes might you make in the way you study for the next exam in this course?

# Part VI: Study Skills

## Note Taking

1. Full-sized, three-ring notebooks are best for containing all lecture notes, handouts, and notes from the text and readings. Why? Pages can be arranged chronologically with pertinent handouts inserted into lecture notes for easy reference. If you miss a lecture, you can easily add the missing notes. Course materials are together in one notebook.
2. Date and number your note pages and your handouts. It will help with continuity.
3. Give yourself plenty of blank spaces in your notes, as well as plenty of room to write. This will allow you to make additional notes, sketch helpful graphics, or write textbook references. Your notes will be easier to read if you write in pen and use only one side of the paper.
4. Law-ruled or summary-margin paper is helpful with its three-inch margin on the left side of the page. If you can't find this paper, draw the margin on each piece of paper. This sets one up for using the Cornell format of note taking. Write your notes on the right side of the line. After the lecture, use the left margin for key words or phrases, or sample questions when you review the notes.
5. Take as many notes as you can. If you miss something, leave a space; you may be able to fill in the blanks later. Do not stop taking notes if you are confused or if you want to ponder a particular concept. You will have time for that later. Abbreviations are extremely helpful. Suggestions for abbreviations are listed in this section.
6. It may be difficult to make your notes look great or to have them extremely organized as you write them. Work with your notes as soon after class as possible when your recall is at its best. You may be able to fill in some blanks. Color coding can bring some organization to your notes. For example, identify concepts and categories by highlighting items with a particular color. If you still have problems organizing your notes, begin to formulate a specific question for your professor or study groups.
7. As you review your notes, look at the information as answers to questions. As these questions become clearer to you, jot down the questions in the left margin. You may also write key words or phrases in the left-hand margin that cue your recall of definitions, theories, models, or examples. Now you are ready to try to recall the information in your notes. Cover the right side of your notes, leaving only these cues (whether there are questions or key words) to test yourself.
8. As you begin to put the material of the course together, add a somewhat generic question - WHY? - to your answers. You need to know why any particular answer is correct. You need to know why the information is pertinent to the course. This will also prepare you for essay exams, as well.

# Note Cards

Creating and using note cards can alleviate anxiety about remembering facts throughout an academic term as well as provide a portable study tool. An additional advantage of using note cards is to present written information out of sequence. This will help you learn the information free of association to the information it proceeds and follows.

## Procedure

1. 3 x 5 cards can hold important information from notes and reading. Write the cue or question on one side of the card and write the definition, description or answer on the other side.
2. Begin compiling the cards early in the term. Carry the cards with you and review the information many times during the day and evening.
3. The information that does not come to mind readily can be reviewed more often or placed in a "critical" stack. Repetition is the best way to learn the material.

# Mnemonic Devices

Mnemonic devices are aids for improving one's memory. These devices can be much more efficient than rote memory techniques (learning by simple repetition). Mnemonic devices are more effective because they generally attach new information to be learned to old information already mastered, or to catch words or phrases that are more easily remembered.

## Jingles

days in each month--*30 days hath September, April, June and November*

spelling generalization--*i before e except after c*

## Acronyms (catchwords)

the Great Lakes--*HOMES*

the only spot in the U.S. where four states meet--*CANU*

## Acrostics (catch phrases)

the colors of the spectrum--*Roy G. Biv*

the order of the planets from the sun--*My very educated mother just served us nine pickles*

## Procedure for Developing Acronyms and Acrostics (Catchwords/Phrases)

Step 1: Present information to be learned. Underline the first letter of each word.

Step 2: Devise a word or phrase (nonsense or otherwise) using each letter underlined.

For example: Psychology - 4 symptoms of schizophrenia

1) withdrawal 2) hallucinations 3) inappropriate emotional response 4) delusions

Catchword: *whid*

For example: Chemistry - 7 diatomic molecules

Bromine, Hydrogen, Chlorine, Flourine Oxygen, Nitrogen, Iodine

Catch phrase: *Brian helps Claire find out new ideas.*

If a series of phrases needs to be learned, have the students first circle the key word, or most significant word in each phrase. Then, underline the first letter of each key word and form the catchword/phrase as outlined below.

For example: Psychology - Abraham Maslow's theory of basic human needs:

1) biological need 2) safety need 3) need for companionship 4) esteem need 5) self-actualization

Catch phrase: *Bob sings clearly each afternoon.*

# Eight Ways To Abbreviate

## 1. Symbols and graphics

|   |                   |                    |
|---|-------------------|--------------------|
| = equal   | * important       | > greater than     |
| ≠ does not equal                                  | ** very important | < less than        |
| & and   | # number          | \$ cost, money     |
| w/ with   | w/o with out      | vs versus, against |
| ( ), { }, [ ] = information that belongs together |                   |                    |

## 2. Abbreviations (don't worry about punctuation)

|                     |                  |                   |
|---------------------|------------------|-------------------|
| cf = compare        | eg = for example | dept = department |
| NYC = New York City | mx = maximum     | mn = minimum      |

## 3. Use only the first syllable of the word

|                |                 |               |
|----------------|-----------------|---------------|
| pol = politics | dem = democracy | lib = liberal |
|----------------|-----------------|---------------|

## 4. Use the first syllable and only the first letter of the second

|                |                     |
|----------------|---------------------|
| subj = subject | cons = conservative |
|----------------|---------------------|

## 5. Eliminate the final letters; just use enough to recognize the abbreviation

|                      |                    |                    |
|----------------------|--------------------|--------------------|
| assoc = association  | biol = biology     | rep = repetition   |
| intro = introduction | concl = conclusion | info = information |

## 6. Omit vowels from the middle to words

|                    |                 |                   |
|--------------------|-----------------|-------------------|
| bkgrd = background | pprd = prepared | estmt = estimate  |
| gov = governor     | rdng = reading  | orgnsm = organism |

## 7. Use apostrophes:

|                    |               |                    |
|--------------------|---------------|--------------------|
| gov't = government | am't = amount | cont'd = continued |
|--------------------|---------------|--------------------|

## 8. Form a plural of a symbol by adding "s":

|                       |                 |             |
|-----------------------|-----------------|-------------|
| co-ops = cooperatives | libs = liberals | /s = ratios |
|-----------------------|-----------------|-------------|

# Reading Textbooks

1. As SI leader, ask yourself the following questions:
  - a. *What should students know* when they finish this chapter? What are the major concepts that the students should understand? What supporting information or details should they remember on a long-term basis?
  - b. *What should students be able to do* when they finish the chapter? What background information is essential to perform the required task?
2. Draw attention to the items you believe are important for success in this course. Ask students **why** the items are important.
3. Encourage students to read assignments before the topic is discussed in class. Suggest that previewing the reading sets them up to better manage their time and information gathering. From time to time do this together in SI sessions.
4. Review how to read charts, graphs, and diagrams. Discuss the importance of understanding the information gleaned from the graphic.
5. Help students formulate questions from textbook headings, vocabulary, and diagrams.
6. Integrate lecture notes with readings. Does the information in the text complement or extend the lecture information?
7. Show students how to supplement their notes using the index of the text. For example, topics may not be addressed within the pages assigned. Check the index to see if the topic is addressed in another section of the text.

## Textbook Activities

1. Write a study guide for a chapter in the textbook. Distribute this to students attending SI. Encourage students to prepare their own study guides for other chapters.
2. Have students compare two sources of information about the same topic - the text and the lecture. Note information found in both sources as especially important.
3. Preview chapters during the SI sessions.
4. Have the students survey the chapter for several minutes.
5. Occasionally, the instructor assigns text chapters, but tests only on class notes. It is not a bad study skill for a student to eventually realize this and use the text only as a backup to the notes. Avoid suggesting the text is not important, but gradually de-emphasize it during SI if you find this to be the case.

# Marking Textbooks

## 1. Finish reading before marking.

Never mark until you have finished reading a full paragraph or headed section and have paused to think about what you just read. The procedure will keep you from grabbing at everything that looks important at first glance.

## 2. Be extremely selective.

Don't underline or jot down so many items that they overload your memory or cause you to try to think in several directions at once. Be stingy with your markings, but don't be so brief that you'll have to read through the page again when you review.

## 3. Use your own words.

The jottings in the margins should be in your own words. Since your own words represent your own thinking they will later be powerful cues to the ideas on the page.

## 4. Be brief.

Underline brief but meaningful phrases, rather than complete sentences. Make your marginal jottings short and to the point. They will make a sharper impression on your memory, and they will be easier to use when you recite and review.

## 5. Be swift.

You don't have all day for marking. Read, go back for a mini-overview, and make your markings. Then attack the next portion of the chapter.

## 6. Be neat.

Neatness takes conscious effort, not time. Later when you review, the neat marks will encourage you and save time, since the ideas will be easily and clearly perceived.

## 7. Organize facts and ideas under categories.

Items within categories are far more easily memorized than random facts and ideas.

## 8. Try cross-referencing.

For example, if you find an idea on page 64 that has a direct bearing on an idea back on page 28, draw a little arrow pointing upward and write "28" by it. Then turn back to page 28 and alongside the idea there, draw an arrow pointing downward and write "64" by it. In this way you'll tie the two ideas together, in your mind and in your review.

## 9. Be systematic.

There are many ways to mark the text: single and double underlines; the use of asterisks, circling, boxing for important items; and the use of top and bottom margins for longer notations. If some of these ideas appeal to you, work them into your marking system, one or two at a time. But use them consistently so you will remember what they mean at review time.

# True/False Exam Questions

1. Remember to read the directions for the exam before you begin.

2. Determine the number of questions and budget your time.

Many times when True/False questions are given there are a large number of questions. If so, answer each question quickly. It may not be worth a lot of time to get one question right if the question is only worth two points on a 100-point test.

3. Read each question carefully.

Remember that if any part of a statement is false, the entire state is false. Most questions contain a combination of who, what, when, where or how facts. If any one of those facts is wrong, the statement is false.

4. Look for qualifiers.

Words like *never*, *all*, *none*, *only*, and *always* generally indicate a statement is false. On the other hand, *sometimes*, *generally*, *often*, *frequently* and *mostly* indicate a statement is true.

5. Answer the questions you know first.

Often answers to questions you don't know are supplied in other questions. Go back to answer the difficult questions later.

6. When guessing, do not change answers.

Research indicates your first answer is usually best. However, don't be afraid to change answers when you have a good reason for doing so.

7. Answer all questions.

Unless points are deducted for incorrect responses, leave enough time to answer all questions. Mark all remaining or unfinished questions true; in a true/false exam a slight majority of the answers are usually true.

8. "Reason" statements tend to be false.

When something is given as the "reason" or "cause" or "because" of something else the statement will tend to be false.

# Multiple Choice Exam Questions

1. Remember to read the directions for the exam before you begin.
2. Attempt to answer the question without looking at the options.  
If necessary, cover the answers with your hand.
3. Eliminate the distracters.  
Analyze the options as true/false questions. In a negatively worded question (as in "which of the following are NOT . . ."), put a T or F beside each option, then simply select the false statement.
4. Never be afraid to use common sense in determining your answer.  
It is sometimes easy to confuse yourself by attempting to recall the "right" answer rather than simply reasoning through the question. Make sure your answer makes sense.
5. Answer the questions you know first.  
Often answers to questions you don't know are supplied in other questions. Go back to answer the difficult questions later.
6. When guessing, do not change answers.  
Research indicates your first answer is usually best. However, don't be afraid to change answers when you have a good reason for doing so.
7. When guessing, choose answers that are not the first or last option.  
Research indicates that the option in the middle with the most words is usually the correct response.
8. Answer all questions.  
Unless points are deducted for incorrect responses, leave enough time to answer all questions.
9. If the first option is a correct one, look at the last option to make sure it is not an "all of the above" option.  
The same is true for the "none of the above" question.
10. If options appear similar, chances are one of them is the correct response.  
The same is true for quantities that are almost the same.
11. Allow time at the end to check for carelessness.

# Matching Exam Questions

1. Remember to read the directions for the exam before you begin.
2. Determine the pattern of the matching questions.  
Take a moment before you begin answering questions to determine exactly what is being matched. Are they people with quotes, words with definitions, events with descriptions?
3. Answer the questions you know first.  
Often answers to questions you don't know are supplied in other questions. Go back to answer the difficult questions later.
4. Choose the longest column to read first.  
One column will generally have more reading material than the other. If you begin by reading the column with the greatest amount of reading, matching it to the column with the least amount of reading, you can avoid having to reread the lengthy material each time.
5. With each answer cross out the items used from both columns.  
This will help you save time by not rereading the material and help you answer more difficult questions by visually taking you through the process of elimination.

# Essay Exam Questions

**1. Remember to read the directions for the exam before you begin.**

**2. Don't study for total recall of names, dates, facts, and figures as you might for an objective test. Don't merely memorize material.**

**3. Do learn main ideas, key terms, steps in an argument, stages in a process, etc.**  
Also memorize verbatim at least some key phrases, definitions, or short passages. These will give an authoritative air to your answer.

**4. Do anticipate exam questions.**  
If, for example, you have studied both the fall of Greece and the fall of Rome since the last test, you can anticipate a question which asks you to compare and contrast these.

**5. Read through the whole test first.**  
Answers will come to mind immediately for some questions. Jot down key words now while they are fresh in mind, but don't start writing your answer.

**6. Budget your time.**  
Allow enough time at the end to go back and finish incomplete answers and to proofread your paper. When the time is up for one question, stop writing and begin the next one. On a six question exam, for example, six incomplete answers will usually receive more credit than three complete ones, so try not to leave any questions completely unanswered.

**7. Answer the questions you know best first.** Don't panic about questions you don't know. Stay calm.

**8. Take time to structure your answer, even if you are in a hurry.**  
Whenever you can, work from a brief outline jotted down on scratch paper before you begin to write. Select what is clearly relevant; try to avoid a rambling effect.

**9. Come straight to the point in your answer.**  
Make your very first sentence sum up your main point. If you are writing a lengthy answer, summarize the key points you intend to make in an introductory paragraph.

**10. Take time at the end to reread the exam.**  
Make sure you have answered ALL parts of the question.

**11. Qualify answers when in doubt.**  
It is better to say "Toward the end of the 19th century" than to say in "1884" when you can't remember whether it's 1884 or 1894. The approximate time may be all that is necessary, but you may lose credit for an incorrect date.

# Words Used in Essay Exams

**Compare**—Examine qualities, or characteristics, in order to determine resemblances.

**Contrast**—Stress dissimilarities, differences, or unlikenesses of associated things.

**Criticize**—Express your judgment with respect to the correctness or merit of the factors under consideration.

**Define**—Write concise, clear, authoritative meanings, keeping in mind the class to which the item belongs, and whatever differentiated it from all other classes.

**Discuss**—Examine, analyze carefully, and present considerations pro and con regarding the problems or items.

**Enumerate**—A list or outline form of reply. Recount, one by one, in concise form, the points required.

**Evaluate**—Present a careful appraisal, stressing both advantages and limitations.

**Explain**—Clarify, elucidate, and interpret the material you present.

**Illustrate**—Present a figure, diagram, or concrete example.

**Interpret**—Translate, exemplify, or comment upon the subject, and, usually, give your judgment or reaction.

**Justify**—Prove your thesis or show grounds for decision.

**List**—Present an itemized series or tabulation.

**Outline**—Give main points and essential supplementary materials in a systematic manner.

**Prove**—Establish something with certainty by citing evidence or by logical reasoning.

**Relate**—Emphasize connections and associations.

**Review**—Analyze and comment briefly, in organized sequence, upon the major points.

**State**—Express the high points in brief, clear form.

**Summarize**—Give in condensed form the main points or facts.

**Trace**—Give a description of progress, sequence, or development from the point of origin.

# Short-Answer/Fill-in-the-Blank Exam Questions

1. Remember to read the directions for the exam before you begin.
2. There are few if any "tricks" for this type of exam question.  
Only one of a dozen publications on "test taking skills" surveyed for this topic had a category for short-answer/fill in the blank questions (this entry contained only two paragraphs that were each only two lines long)!
3. It is best to "overstudy."  
You need to know your subject backwards and forwards; the chances are that you will either know it or you won't. Unlike an essay test you will not have the opportunity to reveal what you do know in place of what you don't.
4. Answer the questions you know first.  
Often answers to questions you don't know are supplied in other questions. Go back to answer the difficult questions later.
5. When you prepare for the exam, focus on facts and key words.  
Look over the materials as though you were going to write the exam. Try to predict questions appropriate for this type of exam.