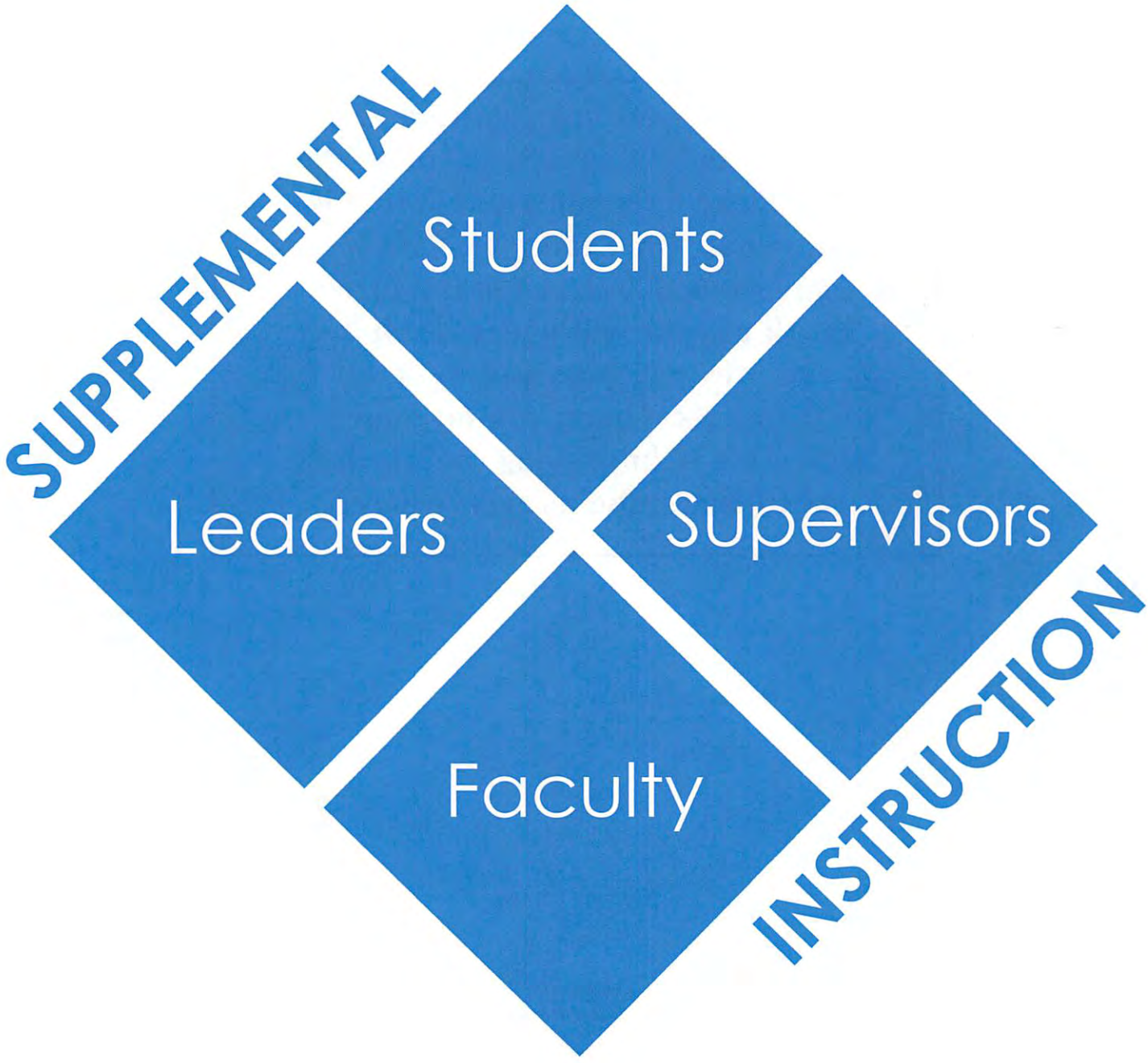
The Leader's Guide
to Supplemental Instruction



We humbly express our gratitude to the SI Leaders and Supervisors around the world who have contributed to this manual. *The Leader's Guide to Supplemental Instruction* is a direct result of your willingness to share your experiences and written materials. Thank you for your dedication to improving the learning of college students everywhere.

Note to the Reader:

The Leader's Guide to Supplemental Instruction is meant to serve as a tool for the SI Leaders on your campus. Our goal is that you will be able to insert your institution's campus-specific information into the electronic copy of this manual, which you are provided as a participant in a training session led by a Certified Trainer from the International Center for Supplemental Instruction at the University of Missouri-Kansas City. Once *The Leader's Guide* has been updated with your institution's information, you will be able to reproduce the personalized version for use on your campus by your SI Leaders. Reproductions of materials must give credit to the International Center for Supplemental Instruction and the Curators of the University of Missouri and must only be used for educational purposes. Please contact the International Center for Supplemental Instruction at the University of Missouri-Kansas City using the information below for more information or to purchase additional training materials.

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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. Sessions begin 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 course section and are usually attended on a voluntary basis, free of charge.

6. SI Leaders are key people in the program. They are students who have demonstrated competence in the course and have great facilitation skills.

7. SI sessions are comprised of students of varying abilities, and no effort is made to separate students based on academic ability.

8. Since SI is introduced on the first day of classes and is open to all students in the course, SI is not viewed as remedial.

9. SI Leaders receive ongoing training which covers such topics as how students learn; strategies aimed at strengthening student academic performance; data collection; and session management tips.

10. SI Leaders usually attend all class sessions, take notes, read all assigned material, and conduct three or more 50-minute SI sessions each week. SI sessions integrate how-to-learn with what-to-learn.

11. Students who attend SI sessions discover appropriate application of learning strategies, (e.g. note taking, graphic organization, questioning techniques, vocabulary acquisition, problem solving, and test preparation) as they review difficult course content.

12. 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 vehicles for refining learning skills.

13. The SI Supervisor 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.

14. The SI Leaders meet as a group bi-weekly throughout the semester with the SI Supervisor for follow-up, problem-solving, further development, and mastery of learning strategies.

15. SI participants earn higher course grades and withdraw less often than non-SI participants. Also, data have demonstrated higher reenrollment and graduation rates for students who regularly participate in SI.

THE INSIDE SCOOP ON *GROUP DISCUSSIONS*

Group discussion is probably the most common activity associated with collaborative learning. As such, we may 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 of three 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

- Attend entirety of pre-semester training and training held throughout the semester.
- Meet with SI Supervisor and faculty regularly.
- Prepare a written session plan for each SI session.
- Show session plan to your Supervisor and the instructor for feedback (especially the first few weeks).
- Include the learning objectives, difficult content, and strategies for the learning activities.

2. Attend the Targeted Class

- Introduce yourself to the course instructor before the semester begins.
- Ascertain requirements for the course before the semester begins.
- On the first day of class, introduce SI to the students and administer beginning-of-term survey, or explain how surveying will be conducted.
- Schedule SI sessions according to most popular times on the survey.
- Check with SI Supervisor for room assignments for SI sessions.
- At the second class, announce the SI schedule and room locations.

3. Conduct Sessions

- Plan an introduction to the SI session.
- Hold marathon SI sessions or extra SI sessions when needed.
- Organize the SI session with built-in flexibility for the needs of attendees.
- Utilize Wait Time One, Wait Time Two, and Redirecting Questions consistently to ensure proper facilitation.
- Provide closure (e.g. a quiz, a summary, a suggestion for future study) to check for understanding.

4. Support Faculty

- SI Leaders support the classroom instructor by providing feedback about students' difficulties, content-related issues, etc.
- The SI program is offered only in classes in which the faculty member understands and supports SI.

5. Integrate Content and Learning Strategies

- Redirect discussion to the group. **This is a key facilitation skill.**

- Provide Wait Time after a question is asked (One) and after an answer is given (Two) to allow students time to process the question and answer. **This is a key facilitation skill.**
- Use the language of the discipline, and have students do the same.
- Integrate how-to-learn with what-to-learn.
- Get students organized and get them started, but don't do the work
- for them.

6. Collect Data for Program Evaluation

- Collect attendance data at **every SI session**, (e.g. student name, course title, date, and time).
- Administer mid/end-of-term questionnaires.
- Work with SI Supervisor as needed to prepare final report.

THE INSIDE SCOOP ON *CLUSTERS*

A *Cluster* is 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 on 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.

The SI Leader must find a way to involve SI participants with the material in an active way. 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. It helps to assign roles to group members such as discussion leader, scribe, and reporter; rotate these roles frequently.

Part II: Relationships

THE SI LEADER AND THE INSTRUCTOR

Break into groups of five or six. Assign each person in the group one of the situations presented below and ask them to lead the group in a discussion about how they would handle it. Review the "Dos and Don'ts" on the next page for tips.

What would YOU do in these situations?

1. The instructor asks you to do something the SI Supervisor has asked you not to do (example: lecture for him or her during a time he or she will be absent).

2. The instructor offers to show you some of the test items from an upcoming exam.

3. The instructor asks you not to pass out old exams in SI. A student brings one to the SI session.

4. The instructor asks you to help distribute handouts in class.

5. The instructor asks if he or she can visit one of your SI sessions.

6. The instructor wants to know which students have been attending the SI sessions.

7. The instructor asks for feedback about content related difficulties the students are experiencing.

Do

- Treat the instructor as your ally, never your adversary.
- Meet with the instructor during his or her office hours to clear up any uncertainties you may have regarding material discussed in the SI session or in the lectures.
- Provide the instructor with feedback about how the sessions are going. Although it is not recommended that instructors attend SI sessions, most SI programs will not self-destruct if the instructor elects to visit one or two sessions.
- Be sure to let the students know ahead of time if the instructor opts to attend a session, as having the instructor there will change the dynamics of the session and will compromise the anonymity of the students in the session. It is recommended that instructors attend SI sessions in a different course and discipline. This preserves the anonymity of the session and allows the instructor to focus on process as opposed to content.
- Show the instructor a copy of your plan for your SI session. He or she can help make your plan more appropriate to the course material.
- Ask the instructor for permission to make announcements to the class. Even though your instructor 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 instructor whenever possible. You should not assume the role of being the instructor's assistant, but offer to assist the instructor in tasks such as passing out materials or other similar activities.

Don't

- Criticize the instructor during an SI session. Students will report this to the instructor and it is not helpful. Students are responsible for their academic performance, regardless of the instructor'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 instructor to the SI Supervisor if he or she requests anything about which you are uncertain or with which you are uncomfortable.
- Answer questions the instructor poses to the class or involve yourself in class discussions unless the instructor directly invites you to do so.

THE SI LEADER AND THE STUDENT

Break into groups of five or six. Assign each person in the group one of the situations presented below and ask them to lead the group in a discussion about how they would handle it. Review 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 copies of the materials 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 material you have created for the session 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 registration difficulties to marital 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. When in doubt, contact your Supervisor immediately if you are concerned about the students' safety.
- 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.
- Demand that students have to defend themselves to you; if they miss a session, act concerned, but don't demand an explanation.
- Say anything that would make you sound like an 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.

THE 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 Supervisor should be consulted to help deal with the problem student. SI Leaders are more effective when they are not perceived as authority figures.

SETTING SESSION EXPECTATIONS WITH STUDENTS

Once students arrive at SI, Leaders may want to take a few minutes (not the entire session) to facilitate a "setting expectations" activity. Following is a list of expectations that we feel students should have of SI and three suggested activities for covering this information in a session.

Expectations of SI

1. **Bring your books and notes**. Students will refer to their book(s) and notes throughout the SI session. Leaders plan activities such as note reviews and Divide and Conquer under the assumption that students will have these texts. Students' book(s) and notes provide a resource to check if there is a dispute about an answer during the session.

2. **Don't expect a lecture**. The SI Leader should not re-lecture over material from class. The purpose of the SI session is not to "re-teach" students or to "tell them" the material again but rather to provide the students with the tools they need to understand and process the material themselves. Re-lecturing is not as effective or as efficient as the processes used in the SI session.

3. **Don't expect a worksheet**. Often students feel they should be given a worksheet to complete during the session. Typically, this type of worksheet has leading questions (related questions in a pre-determined order, chronological or other) and an emphasis on lower order questions (T/F, multiple choice, or yes/no). Such worksheets do not require the student to process the material themselves; therefore, they are not helpful during the session. This kind of worksheet also makes the students feel they need to get all the answers before they leave and can isolate students from one another. A Leader may use a handout for various processes (matrix, vocabulary development, etc.), but this should not be expected at every session.

4. **Expect the Leader to be prepared and plan something to organize the time**. Leaders come to the SI session with a plan to cover specific content from class. This gives the session structure and direction. Students often have questions about material not related to the Leader's plan, and it is up to the Leader's judgment whether or not to incorporate that material. Having a plan allows for the student to arrive at the session even if they don't have any particular questions or "problem areas." By having a plan, the Leader structures the session to maximize the student to student interactions during the session.

5. **Be ready to talk to your classmates**. One of the key components of SI is the student to student interactions, or students teaching other students. However, students often come to SI sessions expecting to sit quietly and listen to the Leader. Many are reluctant to

participate in the discussion, but students benefit the most when they talk to each other about the material in question.

6. **You sign-in to allow us to obtain funding for SI**. The Supplemental Instruction program needs to know who comes to what sessions, so the program can continue to operate. At the end of the semester, we compile a list of who attended SI throughout the semester and who did not. We then look at the average grades of attendees vs. non attendees. Usually there is a one half to one full letter grade difference in the average grade earned between the two groups. The SI program can then present this data to university administrators to show that our program is indeed effective and that we should continue to be funded in the coming semesters. Remember, the professor never sees attendance logs!

7. **You will sit in a circle**. The emphasis in an SI session is that attendees are participating in group study. All students should be participating and helping each other. This is best achieved when attendees are sitting in a circle. Everyone can see everyone else in the session, and it prevents the idea that there is one "lecturer" in the session teaching a group of passive "listeners." Sitting in a circle also makes it easier for students (and the Leader) to remember everyone's name.

8. **SI is the place to make mistakes.** (It's okay.) Almost everyone knows that we can learn from our mistakes. An SI session is the perfect place to do that for a number of reasons. First, you're never graded on anything you do in SI, so making a mistake or coming up with a less than perfect answer won't bring down your GPA. Second, when you make a mistake in an SI session, it gives you and the other students a chance to work through the problem and come up with a better answer for the exam.

9. **We will work on large, complex problems in SI**, not just yes/no questions. In-depth problems allow for more discussion and for students to delve deeper into a subject. Instead of just memorizing answers, students will participate in a dialogue about the material, debate, trade ideas, understand the foundation underneath the subject matter, and obtain a thorough understanding of the material.

10. **You can bring your lunch** if you want. As mentioned before, SI isn't a lecture or a formal study session. Students should come to socialize a little, relax a little, and learn a lot. Eating and drinking doesn't inhibit thoughtful, productive discussion—and besides, it's harder to learn on an empty stomach!

11. **Mentors are experienced Leaders** who attend to observe and give feedback to the SI Leader._Depending on how many people show up at an SI session, sometimes students realize the presence of a Mentor sitting at the back of the room and observing the session; sometimes they don't. Students may think that since the Mentors are not sitting in the circle and participating, they might be "spying" on them, or taking notes about the students' performances. Sometimes they might think that the Mentor is just a random stranger, sitting in the classroom and studying for his/her own class. We would like the

students to know that the Mentor is there to support and consult with the SI Leader and be the link between the SI Leaders and the SI Supervisor.

12. **Your Leader is qualified because s/he has taken the same class or a higher level class and done well.** The instructor approved his/her content knowledge, and the Leader has been trained in group processing strategies. Sometimes the Leader may not answer questions; that isn't because the Leader does not know, but because the Leader wants you to answer.

13. **You don't have to have questions, be done with the homework, or have finished your reading to attend** (although it helps!). Students tend to miss the SI session just because they did not finish the homework or they did not read the chapter yet. Although reading and being familiar with the class material does help a lot, the students do not have to complete their studying before coming to SI. The SI Leader will have chosen a "difficult" part of the chapter to cover, using very helpful strategies. Students will need to be involved in a discussion during the session, but they will not need to prepare anything before coming to the SI session. Even if you have done all of your studying and don't have any questions, you can still benefit from the perspectives of other students who attend SI.

14. **You will get a better grade no matter what grade you want**. There are some students who think that SI is only for "A" students, and there are some students who think that you should only go to SI if you are about the fail the class. SI is designed to help students at every knowledge level. It is a proven fact that SI helps all students get a higher grade at all levels.

15. **You choose the time for SI sessions**. On the first day of class, the SI Leader passes around a survey in the class and asks the students to mark the times that they are not available. Then, the SI Leader tries to pick the times that the majority of the students interested in SI can come. Most of the time, even if all the times do not work for a student's schedule, attending only one session per week can help the student earn a better grade.

16. **The SI Leader should attend every class period**, for two important reasons. The SI Leader should attend class to model good student behavior. They should pay attention, take notes, be on time, and show the professor their due respect. Another reason for the Leader's attendance is to acquire the information from lecture. This is to make sure that the Leader knows what the professor is stressing and also to help explain what the professor meant. Without knowing what the professor lectured on, it would be extremely difficult for the Leader to plan effective sessions. The Leader should also be in every class to maintain a connection with all of the students of the class. This entails putting the session times on the board, making announcements, and just generally making him/herself available to students. This is especially important because many students that don't attend SI sessions initially may attend later in the year.

17. **The SI Leader is there to make sure that the session is efficient**. The Leader has taken the class before, and therefore knows which material is the most important and the most difficult. They are able to make plans to cover this material in sessions and leave the less important and less complex material for the student to cover on their own. In this way, the students are concentrating on essential material and not wasting their time on the superfluous material. The Leader is also there to make sure that sessions stay on track, instead of turning into a social hour. The Leader is also there to make sure that the group doesn't get stuck on one topic that is causing trouble for the group. Lastly, the simple fact that the Leader has already planned the session means that the group can immediately get into studying instead of arguing about what to do.

18. **SI keeps track of the test grades of the students to demonstrate the effectiveness** of the program to the administration and to the students. The data overwhelmingly show that students who attend SI on a regular basis do substantially better than students who scarcely attend or don't attend at all. This is true of each semester, and for the last 40 years at UMKC and internationally.

19. **SI is free**. This allows students from many different backgrounds to attend, which actually enhances SI. It helps to provide a variety of points of view to the discussion. Students pay fees that help fund SI, so since they are already paying for it, they should take advantage of the service.

20. **SI Leaders do not grade assignments or report to professors on student performance or attendance at SI sessions**. This is important because it helps to make sessions more relaxed. Students don't have to be afraid of making mistakes in sessions. If they do not perform well in a session, it does not attach a negative stigma to them, and they should be more willing to ask questions and make sure they understand the material. Because the Leader does not grade, the relationship between the students and the Leader is more friendly and relaxed, providing a more productive atmosphere in the session.

21. **Everyone has had group work in high school where one person does all the work and everyone else just talks**. This is partly because the one who works is trying to protect their grade, and the others are not as interested. In SI, people are coming voluntarily so they are interested in doing the work. In college, everyone is intelligent enough to get admitted, so they are intelligent enough to be helpful to the group. The Leader helps to facilitate and make sure that everyone joins the discussion, and encourages the group to answer each other's questions and explain difficult concepts to each other. SI groups actually help each other, unlike high school groups that can be counterproductive.

REFERRING STUDENTS

Break into pairs. Looking at the "Guide to Campus Resources," use the "Turn to a Partner" technique and discuss with your partner your recommendations regarding where to refer students who reported the following difficulties:

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

THE 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

MTSU Campus Police
1412 East Main Street
Murfreesboro, TN 37132
Emergency Dial 9-1-1
Phone: 615-898-2424
http://www.mtsu.edu/police/

MTSU Crime Victim Assistance & Raider Patrol
1412 East Main Street
MTSU Box 141
Murfreesboro, TN 37132
Phone: 615-898-2424
http://www.mtsu.edu/police/victim-assistance.php
http://www.mtsu.edu/police/raider-escort.php

MTSU Counseling Services
Keathley University Center (KUC) 326-S
Phone: 615-898-2670
http://www.mtsu.edu/countest/counseling.php

MTSU Student Health Services
Health, Wellness & Recreation Center
1848 Blue Raider Drive
Murfreesboro, TN 37132
615-898-2988
Student Health Services: http://www.mtsu.edu/healthservices/
Health Promotion: http://www.mtsu.edu/healthpro/

MTSU Disability & Access Center
Keathley University Center (KUC) 107
Phone: 615-898-2783
http://www.mtsu.edu/dac/

THE SI LEADER AND THE SUPERVISOR

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

My Supervisor can assist me with students when . . .

My Supervisor can assist me with the instructor when . . .

My Supervisor can assist me in getting things I will need for the sessions such as . . .

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 instructor that you will need to make a brief presentation about Supplemental Instruction to the class.
- Write your name, email address, and campus SI office number on the board.
- Distribute 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 early for the class session.

Other:

INTRODUCING SI TO THE CLASS

Prepare a short speech to introduce SI to the class. Organize your presentation as though you were attempting to answer questions students might ask or have about the program. Use a conversational style, and let your personality show through. On the next page are sample questions and answers.

Frequently Asked Questions About the 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 in the course section who want to acquire effective learning strategies and develop an understanding of difficult course material and improve their grades.

Attendance at sessions is usually voluntary. For you, the student, it's a chance to get together with classmates to compare notes, discuss important concepts, develop strategies for studying the subject, and test yourselves before your instructor does, so that you'll be prepared. At each session you will be guided through this material by your SI Leader, a competent student who has already successfully completed the course.

What is 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 have taken this course, have done well in the course, and can be a valuable resource to you.

They know the course content and are anxious to help guide you through it. They will be in class with you every day, hearing what you hear, and reading what you read. What they won't do is re-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 difficult course material more efficiently.

When do SI review sessions start?

On the first day of class, you will be surveyed by the SI Leader regarding your class schedule. Each SI Leader will set up two or three review sessions each week at times that are best for the majority of students taking the class. You can attend as many or as few sessions as you'd like; each one will be different because you'll have new material to discuss. SI sessions are informal. Bring your notes; bring your textbook; bring your questions; you may even bring your lunch!

What's in it for me?

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

OPENING THE SI SESSION

Discuss the following issues:

1. How will you arrange the room?

2. Where will you sit?

3. How will you introduce yourself to the group?

4. How will you introduce SI to the group?

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

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

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

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

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

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

CONDUCTING THE SESSION

Break into small groups. Assign each person in the group one or more of the situations presented below and ask them to lead the group in a discussion about how they would handle it.

What would YOU do in these situations?

1. One person is dominating the conversation of the group.
2. Students are having side conversations.
3. 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. 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.

THE INSIDE SCOOP ON *CONDUCTING SI SESSIONS*

1. Running a successful session requires careful planning. Never go into a group intending to "play it by ear" or "answer questions." Prepare a written session plan to share with your Supervisor and instructor for feedback before the session.

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 session.

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 several 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 providing answers.

10. Encourage students to summarize the major concepts of the lectures. Let other student 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.

14. Be sure your session includes the Elements of SI: Wait Time, Redirecting Questions, and Checking for Understanding. Students will get more from the session, and collaborative learning will happen naturally without as much effort from you.

WAIT-TIME

Definition[1]:
Wait-Time is the time that elapses between an SI Leader-initiated question and the next behavior (student response or the Leader talking again).

There are two kinds of wait-time:

Wait-time 1: The time the Leader waits after asking a question
Wait-time 2: The time the Leader waits after a response is provided, regardless of the accuracy

Rationale:
Wait-Time is an important factor in successful SI sessions. Extensive research has demonstrated that the quality and quantity of students' verbal responses increases significantly if SI Leaders regularly utilize at least 15-20 seconds of wait-time. **Wait-time 2** seems to be even more significant than **Wait-time 1**. So, once again, if SI Leaders resist the natural temptation to jump in too quickly to answer or rephrase, student learning improves. Increased wait-time allows the brain more opportunity to consolidate information, which allows for deeper processing of information. According to de Jong and Ferguson-Hessler[2], deep-level knowledge is associated with comprehension, abstraction, critical judgment, and evaluation. Deep-level knowledge "has been thoroughly processed, structured, and stored in memory in a way that makes it useful for application and task performance."

Research findings[3]:

For Students:

1. More students answer
2. More accurate answers
3. Answers are more elaborate, reasoned, and supported
4. Students listen to each other more
5. More speculative responses
6. More questions asked
7. More participation by poorer students
8. Increase in use of logical consistency in responses

For SI Leader:

1. Asks fewer questions
2. Connects questions better
3. Asks more higher-order questions
4. Demonstrates greater flexibility
5. Expects more from poorer students

[1] Rowe, M. B. (1974). Wait-Time and rewards as instructional variables, their influence on language, logic, and fate control: Part 1—wait-time. *Journal of Research in Science Teaching, 11*(2), 81-94.
[2] deJong, T. & Ferguson-Hessler, M. G. M. (1996). Types and qualities of knowledge. *Educational Psychologist, 31*(2), 105-113.
[3] School Improvement in Maryland. (2003). What have we learned about good instruction? Retrieved March 11, 2003, from: http://www.mdk12.org/practices/good_instruction/projectbetter/thinkingskills/ts-83-85.html

WAIT-TIME

When Students Don't Respond:

SI Leaders may worry about what to do if no one responds. After waiting 15-20 seconds with no responses, they may want to try one of the following[1]:

- Repeat the question
- Rephrase the question
- Simplify the question
- Ask a student to attempt to rephrase the question
- Break down the question into its component parts
- Make the question more specific
- Ask students what it is about the question they do not understand

After each alternative, wait 5-10 seconds.

What can you, as an SI Leader, do if no one answers a question?

_____

_____

_____

_____

How do you respond to students who get frustrated waiting for a response?

_____

_____

_____

_____

[1] Lorsch, N. and Ronkowski, S. (2003). *Teaching tips for TAs: Wait-time.* Retrieved July 23, 2003, from University of California, Santa Barbara website: http://www.id.ucsb.edu:16080/ic/ta/...html
Leader Resource Manual, UMKC pg.87-88

REDIRECTING QUESTIONS[1]

Description:
Redirecting questions can be considered the process most central to the Supplemental Instruction program. The process itself is fairly simple to understand, but difficult to practice without a context in which to do so. The goal of this process is to encourage more and better student-to-student interactions in the sessions. It is based on the concept that we all learn better when we have to explain something to someone else. The natural tendency for anyone is to answer questions asked; this process requires the Leader to suppress that tendency and redirect questions back to the group. Perhaps it is easier to illustrate this process with a few examples:

Sample Interactions:

Student to Leader: What is the derivative of a constant?
Leader: Can anyone find an answer to that in your notes/text?
[*Use the resources that students have. Useful when it is obvious that students don't know the answer. Makes students think for themselves and process the material in a way that will be helpful for them.*]

Student to Leader: I don't understand how temperature affects a chemical reaction.
Leader: I'm glad you brought that up! Why don't we analyze #5 on the handout to see if we can understand how temperature affects different reactions? Let's see if we can come up with the reasons by the end of the session. [*Remember to use responses that offer positive reinforcement. Leaders often will anticipate problem areas and have sample problems on a handout. A useful handout may structure the answers and list steps.*]

Student to Leader: I don't know how to do this problem.
Leader: What part(s) of the problem do you understand?
[This will help narrow the question and divide it up in more useful parts.]

Student to Leader: I understand how to get the derivative, but I don't know what to do next.
Leader: Would someone please go to the board and scribe as we work it together? Or: Would someone please put what you have for this problem on the board?
[*Note: This interaction demonstrates that there may be a two- or three-phase process. SI s get questions redirected back to them, for example. In that case, help the students to structure the problem, redirecting as you go.]*

[1]Riley, J. P. (1981). The effects of preservice teacher's cognitive questioning level and redirecting on student science achievement. *Journal of Research in Science Teaching, 18*, 303-309.; Brown, B. E. (1979). *Probing skills for tutors*. Paper presented at the Annual Meeting of the Western College Reading Association, Honolulu, HI. (ERIC Document Reproduction Service No. ED184065)

REDIRECTING QUESTIONS

Additional Sample Phrases:
What is this question asking for?
Why are you thinking of it in that way?
Give an example of that.
Can you summarize the discussion up to this point?
Can you think of another way to think about this?
How is your answer (point of view) different from _____?
Let's rephrase it on the board and figure out what information we will need to answer it.
Can you be more specific?
How does your response tie into ____?
Let's look that up in the text.
Let's write down everything we know about this topic/problem/theory.
How can you relate this to everyday life?
Okay, that's the book definition, but how do we define that (i.e. in your own words)?
So, how do *you* think you can redirect questions?

Practice Exercise

1. Have each participant write down a question that could be asked in a session for his/her discipline.
2. Make sure that the group is in a circle to avoid this evolving into a mini-lecture.
3. Select one participant to take the role of an SI Leader.
4. Have the participants ask the questions they have written down.
5. Have the Leader redirect the questions to the group. Group members should answer as naturally as possible.
6. After several exchanges, change who is taking the role of the Leader and repeat the process.

How does this process attempt to break the *Dependency Cycle*?

_____

_____

What would you do if the response by the student after the Leader's redirect were "If I knew how to do this problem, I wouldn't have come to SI!"?

_____

_____

Are there some questions that should not be redirected? Give an example.

_____

_____

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 one:

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 two:

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, 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.

THE 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 for 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

CHECKING FOR UNDERSTANDING

Definition:
The learning strategies that SI Leaders use in their sessions are designed to promote student-to-student interactions. We cannot automatically assume, however, that the students are gaining understanding from their interactions. Instead, we must check for understanding by asking the students to confirm that they have learned the content.

Rationale:
The most common method of checking understanding is to ask the students a closed-ended question like, "Do you understand?" This question can be answered with a simple yes or no. This is not effective because students are sometimes uncomfortable admitting that they still do not understand a concept, especially if considerable time has just been spent on it during the session. Instead, questions that check for understanding should be open-ended and require higher-order thinking skills.

It is essential that students can explain the discussed topic in their own words so the Leader knows that students understand before proceeding to the next topic. If there is any doubt that the students did not "get" it, the concept should be discussed again. The Leader should make sure that the students get a chance to demonstrate their understanding so that demonstrating understanding becomes part of the SI sessions. This will improve student preparation and learning.

Possible Ways to Check for Understanding:

1. Always maintain eye contact with the students during the session. By making eye contact, you will likely see when a student is confused.
2. Ask a student to summarize the concept just covered. If s/he struggles, ask the group to help him/her.
3. Ask for a volunteer to write the main points of the discussion on the board.
4. Ask a question that requires the student to understand in order to answer correctly. For example, if you just covered the difference between the logical rules of inference, disjunctive syllogism and modus ponens, ask the group, "So I can use Disjunctive Syllogism on this argument, right?" when you cannot, based on the discussion. When they reply, "No, of course not," ask them *why not*.
5. Once in a while, intentionally make mistakes on the board. The students will catch you if they understand. If no one notices, probe the group about the content on the board until they discover the mistake. (Frequent use of this strategy may confuse students.)
6. Ask the students to rephrase the question you asked originally or the summary another student gave.
7. Ask for real-life examples or applications of the concept.
8. Ask for a similar problem, metaphor, or analogy.

CLOSING THE SI SESSION / REVIEWING FOR EXAMS

Break into small groups. Assign each person in the group one or more of the questions presented below and ask them 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?

THE 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. Below are several strategies for closing SI sessions.

Technique One: 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 Two: 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 Three: Identify the "Big Idea"

Ask each person to tell what he or she thought was the most important concept, idea or new understanding they 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 Four: 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 Five: Summarize the Procedure / Steps / Etc.

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

SI 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, such as test score averages, amount of difference in scores, and DFW and AB rates. Your SI Supervisor can provide you this information.

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. Develop sample tests in SI sessions with the students.

5. Provide skeletal handouts—empty outline, matrix, chart, etc.—that students can fill out in a session; students will appreciate having something tangible to take with them. These can be especially helpful for problem-solving courses. Have students put these on the board and explain them.

6. Post anonymous quotations from students on how SI has helped/is helping. Include some of these with the SI email on the first day of class.

7. Write the daily SI times and locations on the board during each class.

8. Allow for discussions between the class and the SI Supervisor if SI attendance is low.

9. Offer regular reminders from SI Leaders in class on attending SI.

10. Offer something specific in SI sessions—a study skill, rules for problem-solving, jeopardy, games, text review, etc.

11. Change SI times to accommodate the greatest number of students. Resurvey the class if necessary.

12. Offer "how to" handouts on the most efficient/effective study skills.

13. Tell student lab instructors about SI and ask for their support.

14. Report differences in final course grades from previous terms.

15. Post updates, session times, and session topics on social media.

16. Create an awareness video (5 minutes) that explains and promotes SI. Show it on the first day of class.

17. Be sure to promote the SI program through academic advisors, new student orientation programs, and other means before the academic term begins.

18. Place an ad in the student newspaper that lists all courses to which SI is/will be attached. Remember to include a short description of SI.

19. Place an advertisement or announcement in the campus course booklet or electronic timetable that identifies all courses to which SI will be attached. Again, remember to include a short description of SI.

20. Post flyers and/or electronic signage on campus bulletin boards or televisions.

What other SI Attendance Strategies would you add?

Part IV: Forms

SUPPLEMENTAL INSTRUCTION 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. _____

PLANNING THE SI SESSION

Session Date & Day of Week _____ **SI Leader** _____

Course _____ **Course Instructor** _____

Objective: What are the one or two most difficult concepts that the students need to work on today?

_____

_____

Beginning reminders:
1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:

***Possible processes to use:** Informal Quiz, Matrix, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Text Review (Divide and Conquer), Visual Organizers

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:

_____

_____

PLANNING RUBRIC

Offer these questions to SI Leaders to guide them in planning for their SI session.

1. **What is the most difficult content?** (Remember, important is not the same as difficult. There will always be important concepts that you will not have time to address in the sessions. If you try to cover everything, you will create students dependent on you for their knowledge. Instead, we would like to create independent students who can take the study skills they learned in SI and apply them to their future courses.)

2. **What strategies will work well with these concepts?** (i.e. Note review, informal quiz, divide and conquer, think-pair-share, boardwork model, matrix etc) How much time do you expect to spend on each activity?

3. **How many students do you expect?** What will you need to adjust in the strategies you've chosen depending on how many students actually attend? How can you be ready for students who are not prepared? (no book, no notes, haven't read book etc) Make those plans now.

4. **What do you need to prepare to make these strategies successful?** (ie. Review your own lecture notes for a note review; write an informal quiz; divide a reading assignment for divide and conquer; select problems representative of important types to use for think pair share or boardwork model; form your own complete matrix etc.)

5. Write a summary of these plans on the Planning the SI Session sheet.

6. What would you like to remind the students to study on their own?

EXAMPLE OF COMPLETE PLAN

SUPPLEMENTAL INSTRUCTION

Planning the SI Session

Session Date & Day of Week 6.10.2014 Tuesday SI Leader Haley Patterson

Course Theater History Course Instructor Dr. Londre

Objective: What are the one or two most difficult concepts that the students need to work on today?
I want to focus on what commedia dell'arte is and how the characters are different from each other.

Beginning reminders:
1. Arrange seats in a circle
2. Hand out *Participation Log*
3. Set agenda with group
4. Remember to relax and be flexible!

Content to cover:	Processes to use*:
Introduction - Commedia dell'arte	K-W-L Chart (information on back)
Commedia dell'arte	Note Cards (information on back)
Commedia dell'arte	Concept Map (information on back)
Commedia dell'arte Characters	Two Truths and a Lien Quiz (information on back)
Conclusion - Commedia dell'arte	K-W-L Chart (information on back)

***Possible processes to use:** Informal Quiz, Matrix, Reciprocal Questioning, Paired Problem Solving, Turn to Your Partner, Note Processing, Problem Solving Rubric, Formal Definitions (or ID's), Text Review (Divide and Conquer), Pictorial Representations, Sequencing

Possible closure technique: Predict next lecture, Summarize session, Informal Quiz, One-Minute Writing

After session comments/thoughts:
I thought the session went well. The quiz went really well. I would probably change my concept map to a hierarchy because there is a hierarchy in commedia dell'arte and I think it would translate easier to the students.

Commedia dell'arte Note Cards

	Front	Back
1.	Commedia dell'arte	improvised stage action following a scenario; stock characters with masks
2.	Innamorato	male love interest; no mask
3.	Innamorata	female love interest; no mask
4.	Innamorati	the innamorato and innamorata together
5.	Pantalone	miserly merchant from Venice; brown mask with grey beard; red doublet and pantaloon with black cloak; greedy, old man
6.	Dottore	miserly cheap-skate; shows intelligence by using Latin phrases but is secretly dumb; black academic robe and mask with prominent nose

	Front	Back
7.	Capitano	the braggert soldier; usually Spanish; masks with big, black moustache; plumed hat, cape, and sword
8.	Pulcinella	greedy, gluttonous, gross, bad-tempered; humpbacked; mask with large hook nose; cockcomb hat
9.	Zanni	comic servants
10.	Brighella	cunning, cruel; carries a real dagger; costume has horizontal green stripes
11.	Arlecchino	most popular commedia character; both childish and cunning; black, half mask; carries wooden slapstick
12.	Columbina	saucy, pert, soubrette; servant to innamorata; no mask
13.	Pedrolino	white faced clown make-up; no mask, baggy white suit; sad clown in love

Commedia dell'arte
Two Truths and a Lie

1. Dottore is:

True (A) a miserly cheapskate.
False (B) humpbacked. (Pulcinella)
True (C) a character who uses Latin phrases to seem smart.

2. Brighella is:

False (A) a character who carries a wooden slapstick. (Arlecchino)
True (B) a character that is cunning and cruel
True (C) a character with green horizontal stripes on his costume

3. Pedrolino is:

True (A) a sad clown whose in love.
True (B) a character who wears white clown make-up instead of a mask.
False (C) saucy, pert, soubrette. (Columbina)

4. Pantalone is:

True (A) a greedy, old man.
False (B) the male love interest. (Innamorato)
True (C) a character who wears a brown mask with a grey beard.

SI LEADER CONTRACT

Responsibilities of an SI Leader:

1. Attend the entirety of the two-day SI Leader training meetings.
2. Attend all course lectures.
3. Conduct 3-5 SI sessions weekly. Leader must be regular and on time for sessions. Leader should remain in the room the entire 50-minutes, even if no one shows up.
4. Prepare for SI sessions. This includes reading required texts, doing required homework, planning and developing handouts for sessions, and filling out planning sheets for **each session**.
5. Keep Mentor/Supervisor informed of any changes to SI sessions, office hours, and review sessions.
6. Debrief with assigned Mentor after each scheduled SI Leader observation.
7. Observe at least one other SI Leader during the course of the semester.
8. Attend all bi-weekly SI Team Meetings, and be prompt to those meetings.
9. Maintain a regularly scheduled office hour once per week, location TBD.
10. Check university e-mail at least every day.
11. Conduct extra SI sessions at least 3 days prior to exams.
12. Maintain accurate SI attendance records. Leader should record all sessions, even when no one shows up. Leader should turn in Participation Logs and Planning Sheets **every week**.
13. Meet regularly with the professor to share plans, handouts, and establish rapport.
14. Any other duties as assigned by Supervisor.

As an SI Leader, I, _____, pledge to fulfill the responsibilities listed above.

I understand that the entirety of my pay will be withheld if all paperwork is not completed and turned in by the last day of finals week. **I understand the failure to fulfill above responsibilities will make my appointment subject to review and possible termination by the SI Coordinator and Academic Support and Mentoring.**

_____ _____

SI Leader Signature Date

_____ _____

SI Supervisor Signature Date

EMPLOYEE CONFIDENTIALITY STATEMENT

As an employee of the MTSU Supplemental Instruction (SI) Program, I am aware that students may choose to share grade information with me, and that as an SI Leader, I am required to keep this information confidential. I also understand that I may become aware in other ways of confidential information, such as grades, student records, test results, student progress in class, and similar information. I understand that employment with the SI Program means I must accept responsibility to preserve the confidentiality of this information and that failure to adhere to these guidelines may result in the termination of my employment.

I have read the above employee confidentiality statement and understand and accept the responsibility to preserve the confidentiality of privileged information.

Employee Signature_____

Employer Signature_____

Date_____

Leader Copy

EMPLOYEE CONFIDENTIALITY STATEMENT

As an employee of the MTSU Supplemental Instruction (SI) Program, I am aware that students may choose to share grade information with me, and that as an SI Leader, I am required to keep this information confidential. I also understand that I may become aware in other ways of confidential information, such as grades, student records, test results, student progress in class, and similar information. I understand that employment with the SI Program means I must accept responsibility to preserve the confidentiality of this information and that failure to adhere to these guidelines may result in the termination of my employment.

I have read the above employee confidentiality statement and understand and accept the responsibility to preserve the confidentiality of privileged information.

Employee Signature_____

Employer Signature_____

Date_____

Supervisor Copy

ETIQUETTE FOR SI LEADERS

It is important to remember that SI Leaders represent the SI Program and other Leaders. An SI Leader, therefore, needs to behave professionally and maintain open channels of communication with course instructors and SI staff.

Email Etiquette
We will communicate primarily by email. We do not make phone calls to individual Leaders about every general announcement (we'd never be done!), so it is important that you **check your email at least every day**. You are responsible for any information that we send via email, so please confirm that I have your correct email address. See below for information about emailing room requests.

SI Room Etiquette
Etiquette extends to the location in which an SI Leader holds his/her sessions. The room always should be left neat and tidy, with clean blackboards/whiteboards, and with the tables and chairs neatly put in order. SI sessions are technically 50 minutes in length, allowing 10 minutes for your group to exit and the next class to some in. For example, if you have a 10 a.m. session, please wrap up the session by 10:50 a.m. as a courtesy to the 11 a.m. class.

Attendance Etiquette
Etiquette also extends to attendance in all lectures for the appointed SI class. Attendance is required for all lectures for the class for which SI Leaders are conducting sessions. Additionally, attendance is required for all SI sessions, team meetings, office hours, and scheduled appointments. In the event that an SI Leader is unable to attend any of the above, it is imperative that the appropriate people be notified **prior** to the absence:

- Unable to attend lecture – Call the professor and your Mentor/Supervisor.
- Unable to attend sessions or meetings – Talk to a live person! Call your Mentor/Supervisor first. If unable to reach her/him, then call the SI office. If you don't reach a live person, your students will arrive with no clue as to where you are/why you're absent. This lowers student morale and overall attendance patterns.
- Unable to attend office hours: Notify your Mentor/Supervisor **and** the SI office.
- Scheduled appointments: Notify the person with whom your appointment is scheduled.

Regular or Extra Sessions/Time or Location Changes
1) Keep your Mentor/Supervisor informed of any and all changes to your SI times or locations, including review sessions.

2) Schedule all sessions/changes by emailing the SI office. Room scheduling is a complicated process, so to ensure that you receive exactly what you need, **do not leave requests in a note, phone message, or ask in person. These requests must arrive via email so there is a record of each step**. Do this well ahead of time. Rooms can take up to two business days to schedule. Please include your name, your course, the times/days of week you would like (dates if special sessions), and the building you prefer. We will do our best to get you what

you want. **Do not announce session times before you have a room assignment.** Sometimes, there are no rooms available when you want them, and the miscommunication confuses students.

3) Stay the entire 50 minutes of the SI session, even if no one shows. Often students will come part way through, expecting help. Take along something to study if no one shows. Fill out a *Participation Log* with "No Show," when appropriate.

4) Make sure you schedule review sessions before all exams, including the final. **If your instructor has already scheduled all exams, your review session room requests must be sent no later than the third week of the term.**

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 instructor
    d. scheduling and conducting 2 or 3 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 instructor
    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 instructor how the course is organized
    b. ask the instructor for a copy of the course syllabus
    c. ask the instructor how the course is graded
    d. ask the instructor for permission to grade tests
    e. ask the instructor for class time to explain the SI program
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 within a session?
    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 supervision is:
    a. to manage the SI program
    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 Supervisor
    b. the faculty member
    c. the students
    d. the department
    e. all of the above

1. e 2.e 3.d 4.e 5.c 6.c 7.d 8.d 9.b 10.b 11.e 12.e 13.d 14.e 15.a

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.

Think / Pair / Share

Group members work on an assignment or project individually and then share their results with a partner. After discussing with a partner, share findings with the larger group.

Hints

The goal of a Think/Pair/Share is to 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.

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.

Jigsaw

Jigsaws, when used properly, make the group as a whole dependent upon all of them in 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 their position on an issue, problem or topic. This process insures that each member of the group is allowed to offer or state their 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.

Tip: This is a great activity to get students familiarized with several different note-taking techniques. You can use Lecture Review to introduce Outlining (as stated above), the Cornell Method of Note Taking, Matrix, and Mind Mapping. Students can use these methods with all classes.

ORAL READING OF LECTURE NOTES

Note Review is a good strategy to use early in the academic term because:

- 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, and the new vocabulary. Students identify meaningful examples and check for understanding. Checking for understanding is a key facilitation skill that should be used in all SI's.
- Take a look at the Note Taking discussion in Part VI for methods and procedures.

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. It is important to note that 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:
    - 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 number for specific questions to ask the instructor 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, if 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: Tell students 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. _____
  a. _____
  b. _____
II. _____
  a. _____
  b. _____
III. _____
  a. _____
  b. _____

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 eliminating the notation. By the end of the term, students should be able to complete their own outlines without assistance. The best way to get students involved, even those students who are too shy to participate, is to have them write their own outline. You can use technology to put the Incomplete Outline on the board or the projector; then, students can copy it for their own notes.

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. It is a helpful tool for students to compare and contrast information.

Colonization

	Religious	Economic	Political
Dutch			
English			
French			
Spanish			

Sample Vocabulary Matrix

Term	Paraphrased Definition	Example from Lecture Notes	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 or Mohawk	none	New York telephone local service

Tip: The SI Leader should always have a completed Matrix to use as a guide. As the semester, progresses, the Matrix becomes less and less complete until the students are then determining the headings and content themselves.

Adapted from Onondaga Community College, Syracuse, New York

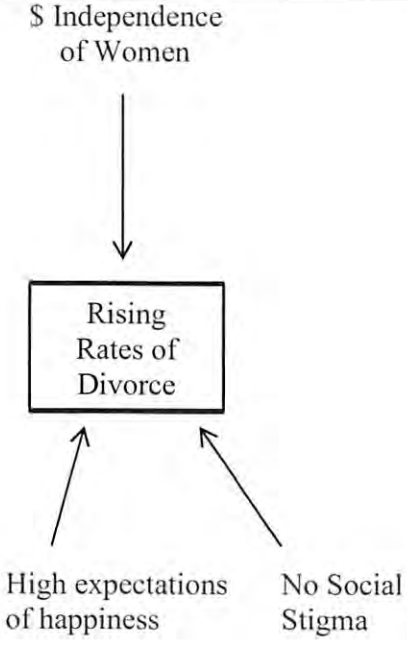
VISUAL TECHNIQUES

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 illustrate 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 should be adapted to the subject matter. The key idea is to visualize the information and to use as few words as possible.

Mapping:



Picturing:

Positions of Theorists on Basic Assumptions

Freedom Maslow, Rogers, Freud, Skinner **Determinism**

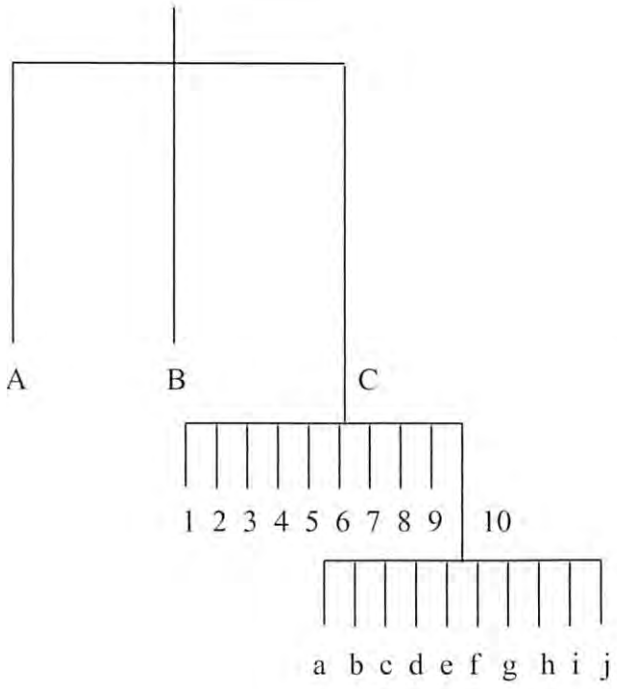
Good Rogers, Maslow, Freud **Evil**

Holistic Jung, Rogers, Maslow, Freud **Atomistic**

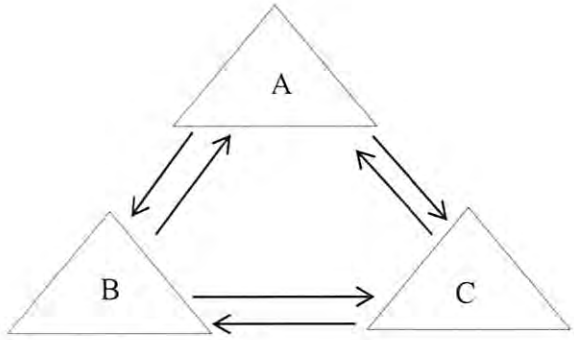
Environment Skinner, Erickson, Freud, Jung **Heredity**

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

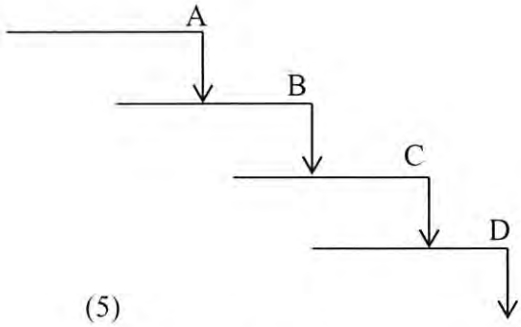
(1)



(2)



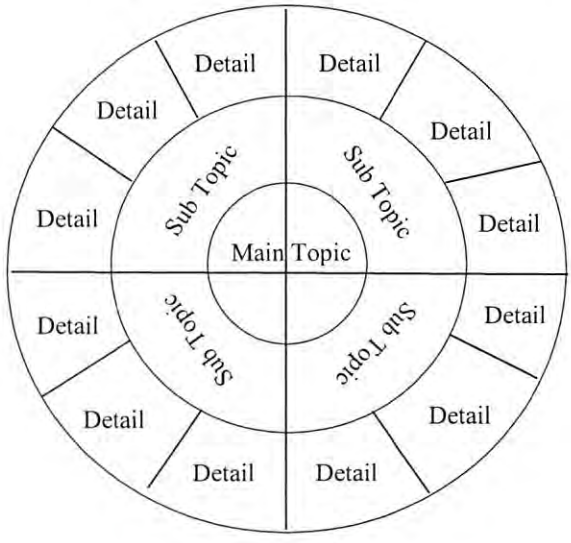
(3)



(4)

	a	b	c	d
1				
2				
3				
4				

(5)



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 thinking and discussing 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. It 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:
    a. everyone is writing, even if they do not know the answer; they can write down the question instead
    b. uses scrap paper
    c. paper is not turned in or seen by other students

8. Provides a mind-set 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 is a powerful way to allow Leaders to Check for Understanding – a key facilitation skill.

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 too difficult, but should emphasize recall of key points or of minor points related to key points. One or two questions should require use of higher order thinking skills.

5. Use a variety of questions formats, including fill-in-the-blank, multiple choice, T/F, etc.:
   (a) "The answer is _____; what is the question?"
   (b)"True or False: The theory behind ..."

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 SI session. 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, and 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 SI sessions:

1. Don't "translate" - use the term yourself. For example, if a student in an economics session 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, copy from the textbook a few pages that cover important material; pass out red pens and suggest 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 a 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. Have students write a sentence to explain the significance of particular entries on the Time Line.

Remember, Time Lines do not necessarily need to be organized around dates; Time Lines can also cover processes or events in a series. (e.g. mitosis, a bill becoming a law, etc.)

Samples

1. U.S. Events: (Initial Time Line)

Erie	Canal Railroads	Civil War	Industrialization	WWI
1825	1850	1860-65	1900	1917

2. European Immigration to the U.S.: (Secondary Time Line)

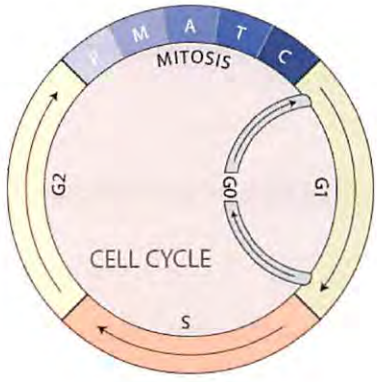
Wave I Irish & German	Wave II N.W. Europe	Wave III S.E. Europe	Quotas
1840	1880	1915	1921

3. The Timeline of Mitosis

Prophase Prometaphase Metaphase Anaphase Telophase
Telophase

0 20 40 60 80
Time (Minutes)

[G2][----------Mitosis----------[Cytokinesis]----------][G1]



PREPARING FOR EXAMS

Students often become anxious about the language in a test 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 SI sessions. This type of activity is good shortly before an exam when you have a large number of non-regular participants in the group. Plan to work together to create review sheets for each predicted question at the next session before the test. It is important not to cover practice exams created by the instructor during sessions; they are provided for students to utilize outside of class. The students in the SI session should create their own practice exam using their notes/textbook, or the SI Leader should offer students problems similar to those on the practice exam.

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, and/or 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, i.e. 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 present 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. The summary sheet could be written by the SI participants as a group. If the instructor distributes a sample question or has a file of previous tests on reserve in the library, discuss the wording of the questions in SI.

Using a Practice Exam in the SI Session
Ask the instructor if he or she feels comfortable looking over the students' questions and making suggestions. With the instructor's permission, announce to the class that the practice exam, developed by the students, will be used in the next SI session. Make sure the students understand that the questions were developed by the students and are not developed by the instructor. It is also a good idea to reiterate that the practice test may or may not cover content that will be on the exam. If providing a practice exam/study guide, make sure there is a time to debrief and discuss the information. Also, do not hand out an answer key since the study guide was student created; the group should be working together to find the answers.

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. Some students find this very helpful.

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.

Prelecture Notes
Use the titles on the syllabus to guide you to what are the important parts of the text chapters. Note which problems are assigned as homework. Look at chapter headings, subtitles, diagrams and captions, and scan the text briefly. When appropriate, have students 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 prelecture notes from the text in one color of ink and lecture notes in another color of ink. Be sure to read the chapter summary (read it first if you are short on time). During the lecture, add the prelecture notes to the class lecture notes. Work the problems along with the instructor. After the lecture, work homework problems which relate to the activity. Reread the text book sections which apply. These practices impact what you retain and can retrieve.

Lecture Notes
During the first week, talk about lecture notes for 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 instructor 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. If an SI participant has good notes, have them model/demonstrate how they took their notes.

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 chapter, 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.

Additionally, SI Leaders will want to consider strategies that are particularly well-suited for math sessions, such as:

Boardwork Model – See Part V of the manual.

Vocabulary Activities – See Part V of the manual. This is particularly useful in Math SI sessions because instructors and textbooks often use discipline-specific language.

Time Line – See Part V of the manual. This technique utilizes visual representation to improve the processing of material. Begin with a horizontal line that represents the continuum of time. Important events are inserted relative to each other, creating points on the line. Definitions or examples of terms on the Time Line should be added when appropriate. While often used in Humanities SI sessions, Time Line can be helpful in Math SI sessions for plotting steps important in solving a problem or completing a process.

First Line Only – This strategy is use for students who need to be encouraged to take the first step toward finding the solution. In order to complete this exercise, the following is recommended: Firstly, you need to present a variety of types of problems so that the learner builds confidence in addressing the first level of the problem. Secondly, you will also need to give a strict time limit so that only the first step towards the solution is addressed, e.g. for Calculus, *Instructions: Examine the problems below and tell how you would begin the solution to each one:*

1. $\lim_{x \to 0+} \sin x^x$

2. $\lim_{x \to 0+} \frac{\sin x^x}{x}$

Send a Problem – This strategy can work in pairs or individually depending on the size of the group. Generate a list of problems and assign each a different problem. Have students complete the first step. After a minute, have the students pass their problems to the right and have those students complete the next step. Continue the process until all steps are complete.

PROBLEM-SOLVING SI SESSIONS

THE BOARDWORK MODEL

Definition

Well-organized board work in SI sessions is crucial to helping students understand how to solve specific problems. The Boardwork Model is a method of organizing information in order to facilitate an understanding of problem-solving strategies as a process. It requires four types of information to be collected for each problem; (1) prerequisite knowledge; (2) mathematical steps; (3) a narrative of the steps; and (4) identification, solution, or construction of a similar problem. SI Leaders use the Boardwork model when: (a) students don't know how to solve a problem; (b) students are stuck within a problem/solution; (c) to check student understanding of how to solve each type of problem; or (d) to help organize and "chunk" different types of problems.

Rationale

Problem-solving courses like chemistry, physics, or mathematics are major obstacles for many students. Students often don't know 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. In general, SI creates a safe space 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.

Please note that the problem solving SI sessions are not a venue for students to work on homework assignments. The SI Leader should come up with problems—and test them before sessions—that are new to students but similar to those covered in class or on homework.

Procedure

1. Arrive early and organize the board into four columns. Label like the diagram on the next page. Allow enough room for two people to write at once.
2. Ask for a volunteer to write on the board. If you encounter reluctance, reassure them that the group will tell the scribe what to write. (They don't need to know what to do already.)
3. As a group, brainstorm all formulas, equations, rules, etc. required to solve the problem.
4. Ask for another volunteer scribe.
    a. The first volunteer will list the mathematical steps in the solution; the second will write out the narrative of the steps in the solution. This should be done simultaneously, and the students need to verbalize the steps in their own words.
    b. Encourage students whose skills are verbal to try the mathematical steps and vice-versa. Remember, the group will help them.
    c. Depending on the ability level of the group, identify, solve, or construct

and solve a similar problem. Generally, weaker students should begin by identifying similar problems, but do not underestimate their ability to or how much they will benefit from constructing a problem. If they can get inside a problem enough to construct another one, it will help them understand problem solving more thoroughly.

This is the standard Boardwork Model. The model can be adapted to fit various problem-solving disciplines.

Prerequisites	Mathematical Steps in the Solution	Narrative of Mathematical Steps	Similar Problem: Identify, Construct, Solve
Include relevant equations, formulas, charts, and general rules for solving the type of problem. Include the source of this information (notes, text, previous course) For example: % yield = $\frac{\text{actual}}{\text{theoretical}}$	Solve the problem step-by-step. Number each step. 1. 2. 3. 4.	Describe what is happening in each step of the solution and why the group decided to do it. Use the students' own words initially, but use this column to introduce students to the language of the discipline. 1. 2. 3. 4	Check understanding by asking students to identify, construct, and solve similar problems. Provide the answer and the source of any problems used.

Below are examples of how the Boardwork Model could be used in a math course or a chemistry course. Notice that the columns serve a slightly different purpose here than they do above. However modified, it is always important to include the narrative of the steps taken to solve the problem.

Problem: There is a line whose slope is 1 and whose y-intercept is 17. What is its equation in slope-intercept form?

Prerequisites	Mathematical Steps in the Solution	Narrative of Mathematical Steps	Similar Problem: Identify, Construct, Solve
Slope-intercept equation y=mx+b m=slope b=y-intercept	1. Write down the slope-intercept equation. 2. Plug in the slope value. (m=1) y=1x+b 3. Plug in the y-intercept value. (b=17) y=1x+17 4. Simplify the equation. y=x+17	1. Recall the slope-intercept equation. 2. Identify that m is the slope. (m=1) 3. Identify that the y-intercept is b. (b=17) 4. Plug in the values in their correct order and orientation. Simplify the Equation because the 1 is not needed in front of the x.	There is a line whose slope is 3 and whose y-intercept is 16. What is its equation in slope-intercept form?

Boardwork for Balancing Equations:

_____ CH_4 + _____ O_2 → _____ CO_2 + _____ H_2O

Prerequisites	Steps in the Solution	Narrative of Steps	Similar Problem:
-Identify elements in an equation -Understand molecules -Perform simple multiplication of coefficients	1. Identify the elements found on either side of the equation. (C, H, O) 2. Identify the elements that are not balanced on either side of the equation. The left side has 4 hydrogens and the right side has 2 hydrogens. There are 2 oxygens on the left and 3 oxygens on the right. 3. Plug in a value to try and balance the hydrogens and oxygens. (A coefficient will distribute to each atom in a molecule.) $CH_4 + 2\ O_2 \rightarrow CO_2 + 2\ H_2O$ 4. Check the make sure the equation is balanced. (Are there the same number of atom on each side of the equation?) 5. Simplify if you can. (In our example we do not need to simplify.)	1. See if the equation is balanced to begin with. 2. If the equation is not balanced, write down the number of atoms on each side of the equation. 3. Try to think of coefficients that would balance an equation and plug them in. 4. Balancing equations takes a lot of practice but you can check your work as you go. 5. Simplify to the smallest multiples for each coefficient.	Balance the following equation: $SnO_2 + H_2 \rightarrow Sn + H_2O$

Adapted from "A Model for Supplemental Instruction in Introductory Chemistry" by Dennis H. Congos in SINews, Summer, 1993

HUMANITIES SI SESSIONS

Differences
The humanities provide a way of seeing and knowing that 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, and 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 metaphor, image, sound, narrative--lead to understanding rather than empirical research.

Elaboration Rather Than Reduction
The scientific method assumes 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 instructors is to simplify complex ideas, while literature instructors tend to favor probing for complexity. Instructors 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
Speaking and writing are methods 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 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. Instructors frequently summarize various scholars' positions ("according to Tillich") 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 instructor of literature said, find out all that is out there and then write something different. SI Leaders must help students 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 instructor, not appreciating that the instructor 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 a recognition knowledge of the material.

When writing is intensive, the SI Leader 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.

Additionally, SI Leaders will want to consider strategies that are particularly well-suited for Humanities SI sessions, such as:

Visual Techniques, Time Lines, Vocabulary Activities, and Matrix – For all, see Part V of the manual.

Identify the "Big Idea" – Ask each student to tell what he or she thought was the most important concept, idea, or new information students learned during a particular lecture or even a session. Ask each student to offer a different "take home" concept. Students often feel overwhelmed by the sheer volume of information they have to deal with and this technique helps them identify and organize the information presented.

One Minute Paper – The One Minute Paper is designed to help students realize what they know or do not know. The SI Leader should ask the students to take out a piece of paper and write on the topic presented in the SI session. Remind them it is most important that they put their thoughts on paper in their own words, not that they produce a polished piece of writing. Additionally, the SI Leader may choose to encourage conversation regarding similarities and differences between students' ideas.

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 SESSION

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 their own pattern of the types of errors they commit during examinations. Helping students to discover those patterns will help them self-correct. One goal is to identify correct answers and associate them with learning strategies that worked for the student; students can also identify incorrect answers and discover study skills that might be helpful. Asking students these questions may identify areas where the students excelled or where they need to focus their energies more for the next exam.

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 prepare for the next exam in this course?

POST-EXAM SURVEY

Score yourself in terms of preparation for the exam.

	Did	Did Not	Score
I read the material when assigned.	7	0	
I read the regular textbook and *understood* this material adequately.	7	0	
I read the supplemental textbook and had a good understanding of it.	12	0	
I reviewed the readings carefully before the exam.	4	0	
I have good, complete notes, and when I review them, I can understand them.	24	0	
I studied my notes thoroughly before the exam (until I knew them well enough that I could have told someone what was in them). Just reading through them is not a good score.	24	0	
I attended lecture regularly. (missed 2 to 3 times = 0)	12	0	
I attended SI sessions. (1 or 2 times = 1; regularly = 8)	10	0	
	Add up your score.		

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 Method 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, formulate a specific question for your instructor or study groups. Rewriting your notes is a great way to make them more organized; it also helps students recall information.

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.

4. Keeping all the cards throughout the terms allows for easier review of cumulative exams such as midterms and finals.

Tip: While Note Cards are a helpful and well-known study strategy, SI Leaders should recognize the limitations of this strategy. Note Cards may be effective in achieving a basic knowledge (see page 28), they are less useful in reaching the higher levels of comprehension that most test questions are going to require.

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* (Huron, Ontario, Michigan, Erie, and Superior)
the only spot in the U.S. where four states meet—*CANU* (Colorado, Arizona, Nevada, Utah)

Acrostics (catch phrases)
the colors of the spectrum--*Roy G. Biv* (red, orange, yellow, green, blue, indigo, violet)
the order of the planets from the sun--*My very educated mother just served us nine pickles* (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto)

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, Fluorine, 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) need 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 without	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 of 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

Adapted from: Pauk, W. (1984). How to study in college. *Boston: Houghton Mifflin Company.*

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 learned 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. As a group, create a study guide for a chapter in the textbook during the session. 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 students Divide and Conquer with the textbook. Assign chunks of the reading to groups, and ask the groups to report to the larger group on what they read. This can be especially useful if it becomes apparent that students haven't done the reading necessary for the session. It allows the students to cover a large amount of content in a short time.

5. Have the students survey the chapter for several minutes.

6. 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 reviewing.

9. **Be systematic.**
   There are many ways to mark the text: single and double underlines; the use of asterisks, circling, and boxing for 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.

10. **Color Code.**
If color coding works for you, categorize items by color so that you can easily see them as you review. Use one color for vocabulary words, another for dates, and another for people, etc.

From: Pauk, W. (1984) How to study in college. *Boston: Houghton Mifflin Company.*

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 statement 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 distractors.**
   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, or 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.

From: Pauk, W. (1984) How to study in college. *Boston: Houghton Mifflin Company.*

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.** And don't panic about any you think you don't know. Stay calm.

8. **Take time to structure your answer, even if you are in a hurry.**
   Whenever you can, use a strategy learned in SI sessions before you begin to write. These can include outlining, mind-mapping, matrix, etc. 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.

COMMON WORDS USED IN ESSAY EXAMS

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

Contrast -- Stress dissimilarities, differences, or unlikeness 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.

Part VII: Notes

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