Regional Peer-Supported Learning Centre

University of Limerick
Ollscoil Luimnigh

Peer-Supported Learning Groups (PSLG)

Student Leader Manual

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Acknowledgments

The material in this manual has been adapted by the Peer-Supported Learning Centre (PSLC) – University of Limerick (UL) from the 'Leader Resource Manual' produced by the University of Missouri-Kansas City (UMKC) for their Supplemental Instruction (SI) programme. SI has been adapted by the PSLC to underpin their PSLG model. The manual also uses extracts taken from the Bournemouth University PAL Programme. Readers, therefore, should appreciate that throughout this document the terms 'SI' or 'PAL' are used to refer to UL's PSLG model.

The PSLC is a UL-based cross-institutional centre for promoting effective, learner focused peer-supported learning models and systems through out the Shannon Consortium partner institutions. The project is a UL Teaching & Learning initiative, initially funded, by the Higher Education Authority (HEA) in Ireland under their Strategic Innovation Fund Cycle II (SIF II).

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SI Motto:

Tell me, and I forget,
Show me, and I remember,
Involve me, and I understand.

~ Chinese Proverb

General Introduction to SI

10 Principles of Learning by Carl Rogers [1]

- Human beings have a natural potential for learning.
- Significant learning takes place when the subject matter is perceived by the student as having relevance for his/her purposes.
- Learning which involves a change in self-organisation – in the perception of oneself – is threatening and tends to be resisted.
- Those learnings which are threatening to the self are more easily perceived and assimilated when external threats are at a minimum.
- When threat to the self is low, experience can be perceived in differentiated fashion and learning can proceed.
- Much significant learning is acquired by doing.
- Learning is facilitated when the student participated responsible in the learning process.
- Self-initiated learning, which involves the whole person of the learner, (feelings as well as intellect) is the most lasting and pervasive.
- Independence, creativity and self-reliance are all facilitated when self-criticism and self-evaluation are basic and evaluation by others is of secondary importance.
- The most socially useful learning in the modern world is the learning of the process of learning, a continuous openness to experience and incorporation into oneself of the process of change.

[1] Rogers, C. (1983), *Freedom to Learn*, Merrill, Columbus, Ohio

Supplemental Instruction (SI) for SI Leaders

Definition:
Supplemental Instruction (SI) sessions are peer-led review sessions provided for selected courses. The sessions are organised to allow students the opportunity to interact as they construct knowledge. More specifically, SI sessions provide a chance for students to get together with classmates to compare notes, discuss important concepts, and develop strategies for studying the subject. The sessions are facilitated by a trained SI leader, a student who has taken the class before and earned a high grade. The leader shares with the students what he or she has learned about how to study effectively for the course. The leader attends lectures every day, taking notes and listening closely to the professor. The leader does not re-lecture or give out his/her class notes but helps the students become independent learners by planning activities that encourage students to work together and process material themselves.

Rationale:
Considerable research has been done on the benefits of studying in groups. Students who study together learn two and a half times as much in the same amount of time as students who study alone.[2] Collaborative learning promotes critical thinking through discussion, clarification of ideas, and evaluation of others' ideas. (If the goal merely is to gain factual knowledge, individual study works as well as collaborative learning.[3]) The SI Program focuses on encouraging students to work with their classmates and challenges students to break the cycle of dependency that students may bring with them from secondary school. SI also avoids trying to identify high-risk students by instead identifying high-risk courses.

History[4]:
The SI Program began in UMKC in 1973. The founder, Dr. Deanna Martin, originally created the program to address the academic struggles of students of colour and women in the schools of medicine, dentistry, and pharmacy. The program was so successful that it was expanded to undergraduate programs in the College of Arts and Sciences and certified by the U.S. Department of Education in 1981.

[2] Johnson, R.T., & Johnson, D.W. (1986). Action research: Cooperative learning in the science classroom. *Science and Children*, *24*, 31-32. See also: Johnson, D., Maryuyama, G., Johnson, R., Nelson, D., & Skon, L. (1981). The effects of cooperative, competitive and individualistic goal structure on achievement: A meta-analysis. *Psychological Bulletin*, *89*, 47-62.

[3]Gokhale, A. A. (2004). Collaborative learning enhances critical thinking, *Journal of Technology Education*, *7*, 22-30.

[4]Widmar, G.E. (1994). Supplemental Instruction: From small beginnings to a national program. In D.E. Martin & D.R. Arendale (Eds). *Supplemental Instruction: Increasing achievement and retention*. (pp 3-10). San Francisco: Jossey-Bass.

Benefits:

To Students

- Acquire short-term *and* long-term study skills
- Learn how to organise class materials
- Spend more time on task with class materials
- Prepare more thoroughly for exams, both content and format
- Receive higher mean course grades
- Meet classmates and therefore feel more comfortable participating
- Learn to collaborate with classmates
- Become independent learners

To the SI Leader

- Reiterate knowledge base
- Gain experience in curriculum planning
- Gain experience with collaborative learning techniques and with what it truly takes to learn (not taught to college lecturers in most degree programs but invaluable if you will be teaching)
- Develop communicating skills
- Develop learning skills
- Keep good company – other leaders and students, SI staff
- Network with students
- Earn personalised employment and academic references
- Earn competitive income

To Faculty

- Receive feedback before the end of term student evaluations
- Improve student interactions in class
- See more students succeed and continue in course sequence
- Improve student understanding of concepts
- Work closely with and mentor top students

To the Institution

- Report higher graduation rates
- Raise the learning bar
- Lower rates of students earning D's, F's, Withdrawals
- Provide faculty development
- Create a sense of community
- Bridge the gap between student ability levels
- Provide cost efficient academic support

Ideal SI Sessions

One of the goals of the ideal SI session is to model good student behaviour: this includes modelling good behaviour in lecture as well as demonstrating in the session what students do if they have a questions or gaps in their knowledge. Good sessions also prompt students to develop organisational frameworks to organise the material for more efficient studying, and through the use of well-designed strategies (*Informal Quiz, Note Review*) and techniques like wait-time and question-redirection, encourage students to work with each other, not just ask the leader questions. Through these behaviours, the students will become independent learners.

Effective SI sessions tend to have the following:

- The leader **plans the sessions carefully** by deciding what is the most difficult (not necessarily the most important) content and then matches carefully planned strategies to address the difficult content. It often is difficult for leaders to distinguish difficult from important content. Additionally, it is challenging to probe why the content is difficult – what exactly makes it difficult for the novice learner?
- The leader organises the content. One good definition of SI is "organised peer facilitated study session." Often courses are difficult not because each individual topic is difficult but because there is so much material covered, and novice learners may have difficulty organising or grouping content in order to learn it effectively. A good leader **helps students develop strategies that organise the content** and organise group study time efficiently. Both faculty and supervisors can help the leaders determine what will be the most difficult concepts. (Supervisors with a good understanding of learning pedagogy can assist leaders by having the leaders explain the content and asking leading questions until they both figure out what the concepts are difficult for novice learners.)
- The leader uses effective cognitive strategies related to the discipline. **SI is based on effective learning strategies**, such as Informal Quiz, Matrix, One-Minute Papers, Discipline-Specific Writing Strategies, Reciprocal Questioning, Analogies, Vocabulary Clustering Techniques, Advanced Organisers, Paired-Problem Solving, Talk aloud Procedures, Concept Mapping, Note Processing or Divide and Conquer.
- The leader **pays attention to the group's interactions**. The students sit in a circle or semi-circle in order to see each other. Students talk to each other and ask each other questions rather than the questions' being asked and/or answered by the leader. The session is not a question-answer session.
- Students are doing most of the processing of the content. If the leader brings in handouts that are filled out or questions that are already made out, the leader has done most of the processing rather than the students. In good SI session, the group will predict most of the test questions.
- **Content is broken down** into component parts.
- The learning strategies employed **clarify rather than confuse** content.
- The leader uses **good wait time and redirects questions**.
- The leader is **not the SI "instructor" but a leader** who facilitates rather than "teaches." (Always use the term leader to reinforce this).
- There is **humour.**

- There is **informality**. Students feel free to bring food and drinks and free to come and go.
- Students feel free to come to the sessions even if they have not prepares specific questions ahead of time. Even if students have not prepared the homework (although that is encouraged), students are encouraged to come to the session, and leaders have an alternative plan for such occasions.
- SI leaders and students **know each others' names**
- An **agenda is set** (including items suggested by group members) and there is **closure** to the sessions. There is discussion of future group work both inside and outside of the session.
- There is very little overt leader participation.
- There is evidence of a **strong, positive relationship between the leader and the instructor**.
- Nobody expects a quick fix.
- Faculty members are given both **quantitative and qualitative feedback.**

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 – provides regularly scheduled, out-of-class, peer-facilitated sessions.

2. SI does not identify high-risk students, but rather identifies historically difficult classes.

3. Assistance begins the first week of the term.

4. SI sessions normally occur in classrooms near the course classroom instead of in a learning centre.

5. SI sessions are open to all students in the course and are attended on a voluntary basis free of charge.

6. The SI leaders are they key people in the program. SI leaders are students who have demonstrated competence in this or in a comparable course.

7. SI sessions are comprised of students of carrying abilities, and no effort is made to segregate students based on academic ability. Since SI is introduced on the first day of classes and is open to all students in the class, SI is not viewed as remedial.

8. SI leaders are trained. This training covers such topics as how students learn as well as instructional strategies aimed at strengthening student academic performance, data collection and management details.

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

10. Students who attend SI sessions discover appropriate application of study strategies, e.g. note taking, graphic organisation, questioning techniques, vocabulary acquisition, problem solving, and test preparation, as they review content material.

11. Students have the opportunity to become actively involved in the course material as the SI leaders use the text, lecture notes, and supplementary readings as the vehicle for refining skills for learning.

12. The SI Supervisor is responsible for identifying the targeted course, gaining faculty support, selecting and training SI leaders, monitoring the quality of SI sessions, and evaluating the program.

13. The SI Leaders meet as a group with the SI supervisor at least three times during the term for a follow-up and problem-solving.

14. SI participants earn higher course grades and withdraw less often than non-SI participants. Also, data demonstrate higher reenrolment and graduation rates for students who participate in SI.

The inside scoop on Group Discussions

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

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

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

The SI Leader

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 favourite and least favourite parts of being an SI Leader.

1. SI Leader Training
    - At the beginning of the semester.
    - Throughout the semester.
    - Meet with SI Supervisor regularly.

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

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

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

5. Integrate Content and Learning Skills
    - Redirect discussion to the group.
    - Use the language of the discipline.
    - Integrate how to learn and what to learn.
    - Get students organised 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**, i.e. student name, course title, date, and time.
    - Administer end-of-term questionnaire.
    - Work with SI supervisor to prepare final report.

The inside Scoop on Clusters

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

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

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

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

The SI Leader and the Professor

Break into groups of six or seven. 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. You may want to view the "Dos and Don'ts" on the next page for tips.

What would YOU do in these situations?

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

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

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

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

5. The professor asks if they can visit one of your SI sessions.

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

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

Do

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

Don't

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

The SI Leader and the Student

Break into groups of six or seven. 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. You may want to view the "Dos and Don'ts" on the next page for tips.

What would YOU do in these situations?

1. A student asks you for a copy of your lecture notes because "his or her mum is in the hospital."

2. A student asks you for the handouts you have prepared for the SI session but says he or she can't stay for the actual SI session.

3. A student repeatedly arrives late for the SI sessions.

4. The handout you have created is on the reading that was required for the last class session. No one in the group has done the reading.

5. A student tells you: "I got a 90 on my last test, and I don't need to come to SI anymore."

6. A student confides personal problems. (This could range from anything to registration difficulties to marital abuse problems.)

7. A student is attempting to go beyond the actual content of the course as presented in class or assigned reading materials.

Do

- Say "yes" to students' requests whenever it is reasonably possible to do so.
- Remember that the goal of SI is more than simply helping students score well on examinations. Many things can contribute to attrition.
- Recognise the limits of your job description and training. You are a recognised 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 recognised experts with the problem the student describes.
- Attempt to treat all students as you would a friend.
- Provide straightforward, truthful responses.

Don't

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

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.

Planning and Running an SI Session

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 note 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 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 parts of their discussion.

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

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

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

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

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

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

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

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

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

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

Hint
Use *individual presentations* should typically be used sparingly and only when independent research is required.

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

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

Group Survey
Each group member is surveyed to discover 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.

Introduction: Planning for SI Sessions

Most of the time, SI sessions go well. Over the last several semesters, however, we have observed that the sessions that do not go well have one thing in common: the leaders did not plan well. Some leaders did not plan at all; some did not distinguish between "difficult" and "important" material; some focused on content at the expense of process; some did not plan appropriate activities, and some did not allow themselves enough time. Each of these problems can be solved by emphasizing that planning for sessions is important. This requires a stronger emphasis on planning in the pre-term training, as well as a renewed program commitment to planning in on-going training.

The most significant difficulty we see is that SI leaders feel compelled to cover all course material in their sessions. The SI leaders are generally good, conscientious students, and feel that the students in their SI class hold them responsible for every concept or fact introduced in the course. While this may be, our central responsibility as SI leaders is to encourage the students to break this habit and not hold others responsible for their own learning.

When SI leaders attempt to cover all course material in their sessions, they soon revert to lecture or a question-answer format. These "strategies" may be necessary in order to address all of the information, but they are *not* good SI strategies. These leaders become overwhelmed almost immediately – you are not being paid enough to do this! Instead, *choose* what to cover in the SI sessions based on what is the most *difficult* for students to learn. The sessions will be most helpful to students if you can determine why the difficult material is so difficult. Is it a large volume of information? Are there complicated concepts? Is the material abstract? Do they have difficulty applying it to the "real" world? Do the students lack prerequisite knowledge? Have they done the homework? Do they lack resources necessary to learning (solutions manual, visual models)? A session that addresses the specific reason(s) material is difficult to learn will be the most productive. Continue asking yourself *why* the concepts are difficult until you reach the most basic reasons.

Consider the following example: an SI leader for a biology class is planning a session on cell respiration. She asks herself why the content may be difficult for students. First she thinks that it may be learning the steps involved in the process. She then asks herself why learning those steps is difficult and decides that it must be keeping track of what happens at each step that is tricky. She finally decides it is difficult to keep the order of the process straight because not all molecules will participate in each step. The students will need to develop a way to discern which steps go with each molecule.

SI Session Planning Rubric

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 learn in SI and apply them to their future courses.)

2. **What strategies** (i.e. *Note Review, Informal Quiz, Divide and Conquer, Think-Pair-Share, Boardwork Model, Matrix*) **will work with these concepts? 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)? Make those plans now.**

4. **What do you need to prepare to make these strategies successful?** (e.g. review your own lecture notes for a *Note Review*, write *Informal Quiz* questions, 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?**

Planning the SI Session

Session date _11th Feb_____ **SI leader** __Ted Williams_____

Course __Bio 109_____ **Course Instructor** _Dr. Di Maggio_____

Objective: What does this group most need to accomplish in this session?

___Water potential concept and its application in uptake of water and nutrients direction of flow

Beginning reminders:

1. Arrange seats in a circle
2. Hand out Participation Sheets
3. Set agenda with group
4. Remember to relax and be flexible

Time	Content	Processes to use
	Proton pump, selective permeability,	Reciprocal Questioning
	Water potential symplast, apoplast transmembrane transport	Draw diagrams in pairs
	Root hair to vascular tissue → the uptake of water and minerals	

***Possible processes to use:** Information 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, Summarise session, Informal Quiz, One-minute Writing.

After Session Comment/Thoughts:

__Seemed as though diagrams helped to check for understanding of what's happening in the cell and the roots

Planning the SI Session

Session date ___01/20/04_____ **SI leader** ___Brett Adobe_____

Course __Bio 108_____ **Course Instructor** __Dr. Jay_____

Objective: What does this group most need to accomplish in this session?

__How an enzyme and ATP works

Beginning reminders:

5. Arrange seats in a circle
6. Hand out Participation Sheets
7. Set agenda with group
8. Remember to relax and be flexible

Time	Content	Processes to use
	Structure and functioning of ATP	Informal Quiz
	Catalysts vs. enzymes	
	Activation energy in endirgonic and exergonic	Pictorial representative and labelling graphs
	Types of enzyme inhibitors	

***Possible processes to use:** Information 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, Summarise session, Informal Quiz, One-minute Writing.

After Session Comment/Thoughts:

Planning Flexibility

Rationale:
You have planned your session. You arrive at your room five minutes early and arrange the chairs in a circle. Students come in, and you start the session by setting the agenda. Perfect. Everything is running smoothly and according to plan. Suddenly a student asks if you can cover a subject that is not in your plan! You panic. What do you do? Do you abandon the plan?

One of the reasons SI is successful at over 1400 institutions in 27 countries is because it is flexible. When students present needs that may take you away from the content and activities that you had planned for that session, you don't necessarily have to abandon your plan. Instead, adapt it to fit their requests.

General Structure of SI Sessions

1. Address Student Needs/Student Input
2. Set Agenda
3. Facilitate Planned Strategies
4. Closure

Setting the Agenda:
Before you set the agenda for the session, ask is there is anything in particular the students would like to cover before they leave the session. Ask a student to scribe at the board as they voice their questions/concerns. Just knowing that they have articulated their concern will make it less pressing and allow them to participate fully in the session.

- Sometimes they will ask about material you were already planning to cover. If that is the case, tell them so, but still have the scribe write the question on the board.
- If the questions/concerns are easily addressed by redirecting them to the group, go ahead and do that right away.
- If no other students in the session seem to have the same concern, ask the student to ask you at the end of the session or during your office hours (but still get the question on the board!).
- However, if the concern involves material you did not plan to cover, simply promise that you will come back to it and begin the activities you had planned.

Try to leave the list on the board throughout the session so you can return to it at the end as a closure exercise. Ask the group what items you can cross off the list. Make them give a brief summary of the answer or solution to that question/concern. What items are outstanding? Can anyone answer them now? Ask them who would like to volunteer to ask the instructor. Model your thinking process were you going to solve that problem/answer that question. In other words, give them some leads, but don't do it for them. This is the best way to keep them responsible for their learning. If there is enough need and material, offer to prepare another session to address it. Don't feel bad that you did not anticipate or accommodate their every need – that's impossible!

More Than One Plan:
There are two common situations that leaders must anticipate when planning sessions:

1. The number of students attending will fluctuate. Remember to plan using the *SI Session Planning Rubric*. It will remind you to anticipate a large group as well as a group of three of four. See *Too Many/Too Few Students* for more on adjusting your plan according to the number of students present.
2. The students did not read or prepare at the level for which you planned activities. The *SI Sessions Planning Rubric* also asks you to plan for students who are not prepared. Always have a back-up plan for unprepared students, otherwise you will be tempted to re-lecture. For example, if you have planned for students to work together and solve logic proofs but they haven't memorised the Rules of Inference or Replacement yet, then pull out your back-up flashcards and drill them. *Divide and Conquer*, is a good activity for a back-up plan when students can read a portion of the text to get caught up.

Introduction: Conducting Sessions

Once you have planned your session by deciding what is the most difficult material, *why* it is difficult and matching that material with a learning strategy, the next step is successfully conducting the session. Facilitating a good SI session is much easier with a good plan, but there are important techniques aside from your plan to remember as you facilitate the session. Sessions are generally structured as follow:

1. Introductions (first session of the semester)
2. Addressing Student Needs/Allowing Student Input to Agenda (what would the students like to address before they leave the session? Remember, don't address these needs *yet*.)
3. Setting Agenda (tell the students what you have planned for them)
4. Strategies (facilitate the one or two activities you planned for the session)
5. Closure (how can the group summarise what they have learned this session?)

The proven learning strategies that we encourage you to use (and provide for you in this manual) foster the interaction patterns that have been demonstrated by research to result in a gaining of understanding for students. Therefore, once you have planned using these strategies, your job during the session is to facilitate effective interaction patterns. In order to do so, there are three techniques that you should keep in mind and practice *throughout each* session:

- **Redirecting Questions** (whenever possible, ask students to answer questions directed at you)
- **Wait-Time** (the longer you wait within reason, the more and more elaborate student responses you will receive)
- **Checking for Understanding** (how can you be sure the students are gaining understanding? Check!)

In this section, you will find in-depth description, explanations, and practical applications for the techniques that successful SI leaders employ in their sessions.

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."

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 organisation of the SI.

5. Don't feel tied to keeping up with the content. You don't have to "do something" with every bit of content provided by the instructor and the text.

6. It is more effective to "model" how successful students learn a particular subject than it is to "tell" students what they need to know.

7. Make use of the language of the particular discipline, course, and instructor.

8. Waiting for students to volunteer a well-developed answer takes time. If you are uncomfortable waiting for 30 seconds, join students in looking through notes or text.

9. If students are unable to answer the question, ask for the source of information. For example, ask for the date of the lecture that contained the information and search for the answer together. Avoid taking on the responsibility of always providing answers.

10. Encourage students to summarise the major concepts of the lectures. Let other students fine-tune the responses. If information is incorrect, ask students to find specific references in the text or notes that will clarify the correct answers.

11. Avoid interrupting student answers. SI should provide a comfortable environment for students to ask questions or attempt answers. Protect students from interruptions, laughter, or from those with louder voices.

12. Refer to the syllabus regularly. Check that students understand the requirements and dates of reading assignments, projects, and tests.

13. If your group has more than 12 students, divide into subgroups. Provide discussion topics that the groups can explore. Move from group to group, participating from time to time, reassuring the group that you are still there for them.

Conducting the Session

Break into groups of six or seven. 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.

What would YOU do in these situations?

1. When one person dominates the conversation of the group.

2. When students are having side conversations.

3. When all of the interactions in the SI sessions are between you and the students. There is no student to student interaction.

4. Every time you ask a question over the course content, the group becomes very quiet.

5. You have one student in the session who rarely talks.

6. If a student becomes confrontational and suggests the sessions are a waste of time.

7. Students who typically do not show up for sessions are being shunned by those who do.

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: Who came up with the law of relativity?
Leader: Does someone have the answer to this question?
[Resist the natural urge to provide a quick answer, so you can go on with more complex questions. Redirect back to the group to avoid a Question-Answer session].

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 analyse #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 questions 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.

[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)

Leader: Would someone please go to the board and scribe as we work it together? Or: Would someone please put what you for this problem on the board?
[Note: This interaction demonstrates that there may be a two- or three-phase process. SI leaders get questions redirected back to them, for example. In that case, help the students to restructure the problem, redirecting as you go.]

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 summarise 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 sessions for his/her discipline.
2. Make sure that the group is in a circle to avoid even this practice exercise's 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.

Discussion and Debrief:

1. How does this process attempt to break the *Dependency Cycle?*
2. Map the interaction patterns that occurred during this exercise. Discuss how effective the interactions were in promoting student learning. [See *Student-to-Student Interactions* for examples of interaction patterns to look for.]
3. 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 some to SI!"?
4. Make sure you are redirecting the right questions. Can you give an example of a redirection that shows that the leader misunderstood the question?
5. Are there some questions that should not be redirected? Give an example.
6. Give an example of an additional sample phrase for redirecting questions.

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 below may be helpful.

Questions for person #1:

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

Questions for person #2:

1. What is the difference between organic and inorganic matter?
2. Who was William Blake?
3. Can you explain photosynthesis?
4. What is sickle-cell anaemia?
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 summarise the discussion up to this point?
- How does your response tie into …?
- If that is true, then what would happen if …?
- What would ____ say about that?
- Let's see if we can figure out how to answer it together.

- Can you think of another way to think about this?
- Would any of you like to add something to this answer?
- How is your answer (point of view) different from ____?
- How could we phrase that into a question to ask Dr. X next class?
- What do we need to know in order to solve the problem?
- Which words in the question do you not understand?
- Let's rephrase it on the board and figure out what information we will need to answer it.

Wait-Time

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

There are two kinds of wait-time:

(1) The time the leader waits after asking a question.
(2) The time the leader waits after a response.

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 teachers (SI leaders) regularly utilise at least three 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 probably 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" (p. 107).

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

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 close-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.[1]

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 have not "got" it, the concept should be discussed again. The leader should make sure that the students get a change to demonstrate their understanding so that demonstrative 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 summarise 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.

[1] See *Types of Questions*

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?

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.

Technique #1: Informal Quiz

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

Technique #2: Predict Test Questions

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

Technique #3: Identify the "Big Idea"

Ask each person to tell what he or she thought was the most important concept, idea or new understanding 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 organise the selected topics into more generalised 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 organising all of the information presented.

Technique #4: Predict the Next Lecture Topic

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

Technique #5: Summarise the Procedure/Steps/Etcetera

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

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 difference to the class in:
   Test score averages
   Amount of difference in scores
   DFW and AB rates

2. Report test scores from previous academic terms. Use national data until you develop your own history of institutional data.

3. Distribute reminder handouts to attend SI sessions throughout the term.

4. Offer sample tests in SI sessions with questions developed with the instructor. The instructor could make these available in class with the comment that they will only be discussed during SI.

5. Report the number and/or percentage of test questions covered in SI sessions.

6. Provide time for regular verbal encouragements to attend SI sessions.

7. Use worksheets during SI sessions, especially in problem-solving courses. Even the use of empty matrix worksheets may encourage students to attend who need something tangible to take away from the SI session.

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

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

10. Allow for discussions between the class and the SI supervisor when SI attendance is low.

11. Report improvement on test scores from previous terms.

12. Offer regular reminders from SI leaders in class on attending SI.

13. Offer something specific in SI session – a study skill, rules for problem solving, jeopardy, games, text review, etc.

14. Change SI times to accommodate the greatest number of students. Resurvey the class is necessary.

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

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

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

18. Create an awareness video (5-10 minutes) that explains and promotes SI. Show it on the first day of class.

19. Give handouts during SI sessions occasionally.

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

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

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

Strategies for SI Sessions

Lecture Review

1. During the first 10-15 minutes of the SI session have the students summarise 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 generalisation.

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 materials from previous sessions and lectures.

7. Take a couple of minutes at the end of the SI session to summarise the main idea covered during the session. Ask the students to help summarise.

8. Have students write a one paragraph summary of the lecture. List the new vocabulary terms introduced with this lecture.

9. Formulate potential exam questions, based on the main ideas from the lecture.

10. Formulate potential answers from details in the lecture notes.

Oral Reading of Lecture Notes

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

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

Procedure

1. Tell the group that you will begin reading from your lecture notes and will ask the student on your right or left to pick up where you stop. Let them know that the role of reader will move to each student in the circle.

2. Look at the students and encourage them to let everyone know if something is left out or inconsistent with what they have recorded. To note inconsistency does not mean that someone is necessarily right or wrong; moreover, members of the SI group will discover how to remedy the problem through the following resources:
    - Ask the student who disagreed to read from his or her notes.
    - Ask the group if their notes compare.
    - Check in the textbook for support; add the page reference to the notes.
    - If a consensus is not reached, work with the students to formulate specific questions to ask the professor in the next class.

3. The pressure of reading may unnerve a student who believes that his or her notes are too rough to read. Since reading aloud is a form of performance, some students may be reluctant. Gently encourage the students, but if he or she is <u>not</u> comfortable, don't push. Perhaps note taking skills and confidence will improve as the term progresses and the usefulness of good notes becomes apparent.

4. As you approach the end of the SI session and material has not been discussed, suggest to members of the group that they should finish reading through their notes. If they have questions or blanks in their notes, tell them to work with another student to find the answers or to bring these questions to the next SI session. If time does not permit the discussion of major concepts or vocabulary, draw attention to them. Encourage students to read over the items in their notes and to use the text to supplement their notes.

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 organise information by showing its relationship to similar categories of information.

Colonisation

	Religious	**Economic**	**Political**
Dutch			
English			
French			
Spanish			

Sample Vocabulary Matrix

Term	**Paraphrased Definition**	**Example from Lecture**	**Example from Textbook**	**New Example**
Oligopoly	A Market where a few firms produce all or most of the market supply of a good or service	Airlines	Soft drink manufacturers	Domestic car makers (G.M.; Ford; Chrysler)
Monopoly	A firm that produces the entire market supply of a good or service	Niagara Mohawk	none	New York telephone local service

Adapted from Onondaga Community College, Syracuse, New York

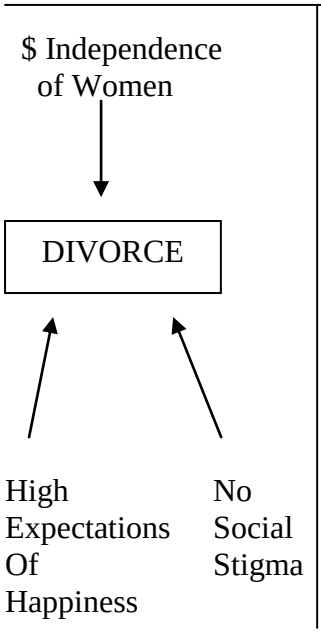
Visual Techniques

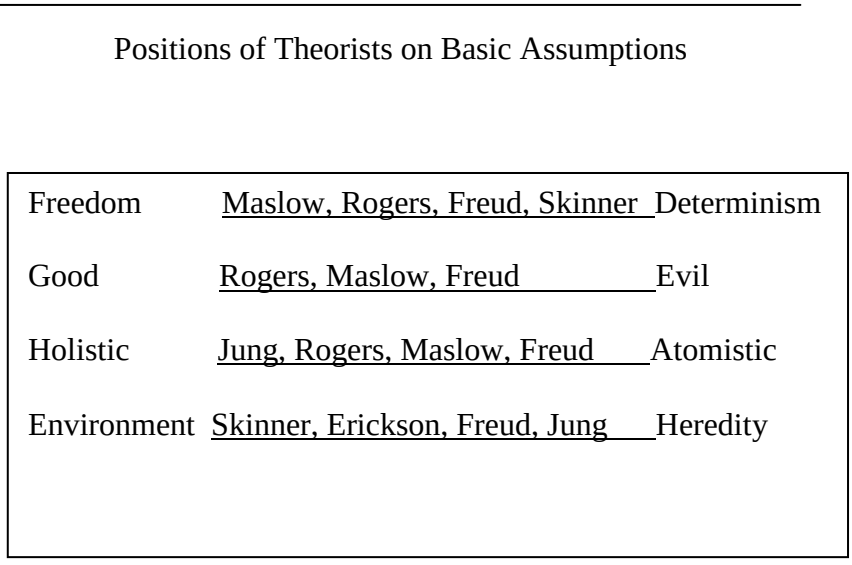
Some students learn well by creating visual study aids. This type of learner may actually picture the page of notes when answering essay questions on a test. Therefore, notes that are clear, concise and well organised are essential. There are a variety of ways to summarise notes in a few words.

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 memorise their notes as if they contained a series of several hundred unrelated facts may easily miss the point. Visual techniques help pull the ideas together.

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

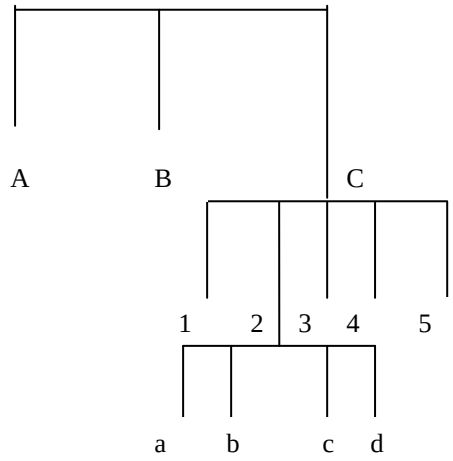
Mapping: Picturing:





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

1.



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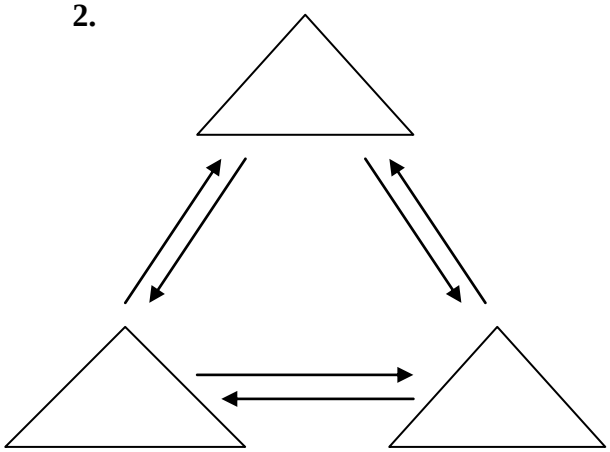
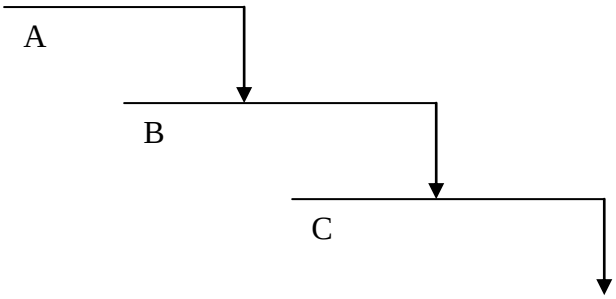


3.

	a	b	c	d
1				
2				
3				
4				

4.



The Informal Quiz

The Informal Quiz is a procedure, used in small group study session, which is educationally compatible with the goals and objectives of SI. Although the title implies a testing tool, this quiz is not intended to be used as a method of formally evaluating student work. The focus is on learning rather than grading. In general, the Information 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 non-threatening activity because of SI activity features:
    - Everyone is writing, even if they do not know the answer since they can write down the question instead;
    - Uses crap paper;
    - 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 Procedure

1. Use scrap paper or half sheets.

2. Ask a majority of questions requiring short multiple answers; e.g., "Name one of the three ways to …"

3. Focus on current material but include two or more concepts the instructor will want the students to understand.

4. Most questions should not be difficult, but should emphasise recall of key points or of minor points related to key points. One, or perhaps two, questions should require use of higher order thinking skills.

5. Questions on familiar material can be varied, e.g., the following:
   (a) "The answer is _____; what is the question?"
   (b) "I can't think of any more. Does anyone have a question I might have asked?"

6. If there are students who aren't writing answers, say, "If you don't know the answer, write the question so you will remember what it was you didn't know."

7. In answering questions, ask who would like to answer a question – any question. Starting with any question instead of the first question contributes to the informality of the quiz and allows a student who only answered a few questions accurately to participate immediately.

8. Call on the weaker students first, whenever they have raised a hand.

9. Restate the question before the answer is given.

10. If possible, find something complimentary to say about wrong answers. "That's a very good guess. If I weren't sure, I might have guessed that." Don't let wrong answers stand.

11. Keep it light and short. Ask a maximum of ten questions.

Vocabulary Activities

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

Vocabulary Activity Goals

1. Identify key technical terms in their notes and text and be able to generate a precise definition.

2. Paraphrase the definitions in their notes and text.

3. Understand the relationship between one term and other key terms which fall under the same topic.

4. Create a parallel example to the one given in the notes or text.

5. Be comfortable enough with the terms to "speak" the language of the course, both in the group and on tests.

Procedure

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

1. Don't "translate" – use the term yourself. For example, if a student in an economics supplement 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 us whether the students can use terms correctly.

2. Before a test, create a handout to help students identify terms in their notes by passing out red pens and suggesting that they circle all key terms in red. Then, have one of the students record the complete list on the board. Put students in groups of two or three. Ask that they refer to their definitions of all of the terms and pair together terms that they feel are connected in some way. Then, report back to the larger group.

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

Term	Meaning	Example from Notes	Example from Text	New Example

4. Create vocabulary note cards for a quick review.

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

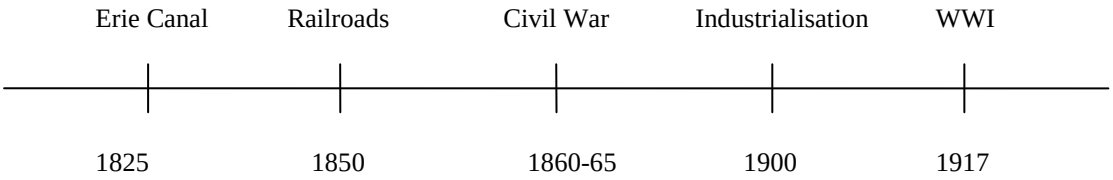
Time lines can be an effective way to show a continuum of events or ideas. Students can use time lines as a frame on which they can hand additional information.

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.

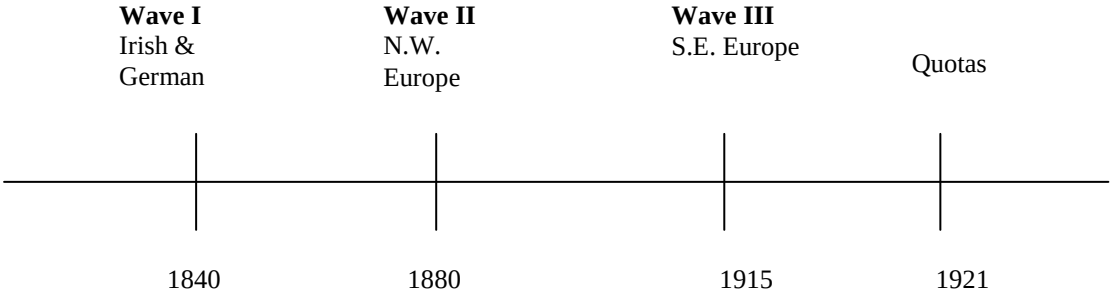
Procedure
Make sure that the dates are truly important before using this procedure. Then, make a brief, very general time line of events happening in the U.S. and/or world at approximately the same time as the dates presented. Give this general time line to the group at the beginning of the session.

Then, have the student 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 place them on the new line. Discussion should centre on events which were happening at the same time as the dates which were presented in class.

Samples
U.S. Events (Initial time line)



European Immigration to U.S. (secondary time line)



Preparing for Exams

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

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

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

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

Use Practice Exam in the SI Session

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

Math SI Sessions

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

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

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

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

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

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

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

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

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

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

(This material was developed to accompany a videotape of math SI sessions with Dr. Patricia Kenney.)

Problem-Solving SI Sessions

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.

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

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

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

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

Chalkboard Model			
PREREQUISITES	STEPS IN THE SOLUTION	RULES	SIMILAR PROBLEMS
This first step includes relevant *equations, formulas, charts*, and *general rules* for solving this type of problem, along with the source. For example: %yield = actual/theoretical	XXXX/XXX XXXXX/XXX = The SI leader or the student(s) model the solution step-by-step with *what is done in each step of a solution and why it is done.* 1. 2. 3. 4.	Here, a narrative description of what is done in each step of a solution is written down. 1. 2. 3. 4. 5.	XXXX/XXX XXXXX/XX = Here, students check their understanding using prerequisites, steps in solutions and rules as learning aides. 1. 2. 3. 4. 5. Answer and a course for the verification of the answer.

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

1. SI leaders need to model the value of learning and using prerequisite information like formulas, equations, charts and general rules in solving each type of problem. Students need to see the sources of information for answers and for solutions to each type of problem.

2. Students see models of how to solve each type of problem as SI leaders or students think through, verbalise and write out solutions that include explanations of what and *why* something is done *step-by-step*.

3. At any point in the modelling process allow students to ask questions.

4. Rules for solving each type of problem are written in narrative form on the board. This allows students to utilise verbal skills in understanding problem-based courses as well as quantitative skills.

5. Students need to be given a chance to practice and/or check their understanding of how to solve a problem by doing a similar problem of their own.

6. SI leaders must avoid re-lecturing or simply telling students how to solve problems. This has little value in helping students understand problem-solving processes.

7. Numbering each step is a great help to students because they can clearly identify each step in an actual solution. When students break problem-solving down into the component steps, they can more easily pinpoint gaps in understanding, ask informed questions about the problem-solving process and practice their current understanding of the problem-solving process to enhance clarity.

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

One-Minute Paper[1]

Definition:
A *One-Minute Paper* is just that: writing for one minute on a questions or topic given by the SI leader. It is not graded and is not meant to be a polished piece of writing.

Rationale:
Brief writings like the *One-Minute Paper* give feedback to the leader about how well the students understand a topic. They also help students realise what they know or do not know through writing about it. The process of writing helps stimulate thinking processes, sharpen prior thinking, and focus thinking.

When to Use:
- ❖ At the beginning or during the session to stimulate discussion. The writing helps students formulate responses in private, so they are more confident to express an opinion to the group.
- ❖ During the session to assess how well students are learning.
- ❖ At the end of the session to see how well students understand and to direct planning for the next session.
- ❖ During a discussion to re-direct it if it seems to be taking off in several directions[2] (See #3 and #5 below for examples of this use.

Process:
1. Decide whether this is a one-, two-, three-minute paper, etc.
2. Ask the students to take out a sheet of scratch paper and write on a topic you present orally or on the board.
3. Use the format of your questions to guide the type of response they will provide. For example, if you want them to create a list, use a question like #6 in "Possible Questions for a One-Minute Paper". If you want them to write prose, use a question like #1 or #3.
4. Remind them that this is not a polished piece of writing. The important part is that they get their thoughts on paper in their own words, so they will be more likely to participate later in the session.
5. Be sure to wait the one, two, or three minutes you promised to (watch the clock because one minute spent in silence with a group may seem like five minutes).
6. Share the responses with the group.
   - ❖ If used as an opening or re-directing activity, ask for volunteers to read their writings aloud. Encourage a conversation about the similarities and differences between their ideas.
   - ❖ If used as a closure activity, you may want to have some students read their writings to the group, but you can also collect them and go over them after the session.

[1] Cross, K.P., & Angelo, T.P. (1988). *Classroom assessment techniques: A handbook for faculty*. Ann Arbor, MI: National Centre for Research to Improve Postsecondary Teaching and Learning. 1988.
[2] Keifer, K. (2004). *An introduction to WAC: Focusing the discussion*. Retrieved June 10, 2004, from Colorado State University Writing Across the Curriculum website: http://wac.colostate.edu/intro/pop5g.cfm

Possible Questions for a *One-Minute* Paper:

1. What was the most important thing you learned today?
2. What questions remain?
3. Give a one-sentence summary: Who did what to whom? For whom, when, where, how and why?
4. Come up with an application in an everyday setting for the concept we've just been discussing.
5. Relate this issue to a current event in national or international news.
6. Write either what you saw as the main threads of the discussion or where the discussion may most profitably go.

Exercise:

Write one additional question that would be good to use as a one-minute writing exercise in your SI sessions.

Post-Exam Survey

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

1. Which part of the exam was the easiest for you? Why?

2. Which part of the exam was the most difficult? Why?

3. Which of the following activities did you complete prior to the exam?

    a. All required reading assignments.
    b. Preparation and review of reading notes.
    c. Review of lecture notes.
    d. Self-testing of material to be covered by the exam.
    e. Prediction of possible questions by you prior to the exam.
    f. Study with friends.
    g. Others.

4. Which of the above did you find most helpful in preparing for this exam?

5. How much time (in hours) did you spend preparing for the exam?

6. Did you feel prepared when you walked into the exam? Why or why not?

7. What changes might you make in the way you study for the next exam in this course?

Ten Activities to use in PAL sessions

Each of the following activities can be used as part or all of a PAL session on a number of occasions during the year. They are intended to help you prepare for your PAL sessions by giving you some ideas for creating structured, useful activities.

Before starting any of the activities you should (a) tell the class the purpose of the activity (b) give them an overview of what the activity will involve.

Each activity is set out in a separate box.

1. Lecture review
Purpose: To review subject material from the last 2 weeks

- Set up class in pairs
- Get each pair to agree on a difficult lecture from the last 2 weeks
- Get each pair to write a list of the main points from the lecture
- Ask them to add whatever they found difficult, even if it was the lecturer's style
- Write on board the lectures suggested by pairs and the main points
    - Take only one point from each pair at a time so that everyone can feel included
- Lead a group discussion around points from lecture
    - Review each point in tern and ask that someone in the class explains the point

2. Exam question devising
Purpose: To review and test understanding of a subject area

- With a group, select a subject area
- Set them up in pairs
- Get each pair to prepare three exam-type questions on the subject area (you may need to circulate round the pairs to check that the questions are suitable)
- Get each pair to give their questions to another pair
- Each pair now works on how they would structure an answer to the questions
- Each pair now compares answer with the students that set them the questions
- Class discussion focused on what came up, particularly whether answers correspond with what the setters of the questions intended

3. Assignment preparation 1
Purpose: To prepare for an upcoming assignment

- Lead an open discussion about what they think the tutor is expecting in the assignment
- Put group into pairs/threes
- Ask each to:
    - Re-write the assignment title in simpler terms or terms that make more sense to them
    - List technical terms and define them
- At this stage bring the group back together to review answers
    - Ask student(s) to write some of their suggestions on the board
- Put the group back into pairs/threes. Ask each to:
    - Write out a structure for the assignment
    - Write a checklist of what needs to be included to get a "good mark" in terms of content, organisation, structure and style

4. Assignment preparation 2
Purpose: To prepare for an upcoming assignment

- Lead open discussion around what is expected of assignment
- Put group into sub-groups of pairs/threes
- Ask half the sub-groups to write a list of important points to include in the assignment
- Ask the other half of the sub-groups to draw a spider diagram (mind map) of important points to include in the assignment
- Get each group to write their lists/diagrams on the board or, if you have the equipment, a flipchart sheet
- Lead group discussion about groups' ideas by inviting them to build on lists/diagrams

5. Presentation practice
Purpose: To review a subject area and give group change to practice presentations

- Put group in pairs
- Ask each pair to agree a subject area from the last few weeks that they found difficult
- Ask each pair to tell you their choice – write it on the board
- Give each pair 5-10 minutes to put together a short presentation on the subject area and how they then understood it
- Each pair then gives their presentation to the class Student Leader and the class make positive and negative points for improvement on each presentation, thus: "*What went well*" and *"What could be improved, and how?"*
- Class discussion on do's and don't for presentations

Alternative method 1: you might also decide in advance with other Student Leaders and/or staff the presentation titles for the class to use.

Alternative method 2: you might also get pairs to choose any subject they like (e.g. a history of twiglets) for a light-hearted chance to get used to presenting – for use early in the year.

Alternative method 3: you could give them a set of random cards with topics on them which have nothing to do with their course. Maybe give them a choice from only 3 and tell them they have only 5 minutes to prepare their ideas for a talk on their chosen topic (The virtue of this is that they don't have to agonise about anything they feel they ought to know, and know that all the others are in the same boat – improvising at short notice!)

Alternative method 4: you might also use session as a chance to prepare for and practice a forthcoming presentation required by the course.

6. What's difficult?
Purpose: To focus on, and review, difficult parts of the course

- Write headings on the board for each unit or area of the course
- Ask students either individually or in pairs to think of one or more aspects of each unit which they have found difficult or confusing
- Get the class to read out what they have identified and go through a number of the suggestions (especially popular choices) – for each idea
- Ask the student who suggested it to explain what it was they found so difficult/confusing about their suggested idea or topic
- Encourage other members of the class to try and help with their understanding

Don't feel tempted to be the expert who explains all the answers – try to draw them out from the class.

7. Quiz 1
Purpose: To review recent course material in a light-hearted manner

- Ask each individual in the class to spend a few minutes writing out on cards a few questions based on current course material, that can be included in the quiz – *they do not need to know the answer to the questions themselves*
- Collect the questions
- Split the class into two team and get each team to choose a team name – write these on the board
- Assume the role of quiz-master and read through the questions – each team has to write an answer to each question
- When you have read through a fair sample of questions go back to the first question and get each team to read out their answers
- You decide which team has given the best answer and score them on the board

Your decision is final on who has given the best answer!

8. Quiz 2
Purpose: To review recent course material in light-hearted manner

- Put the class in two or more teams (maybe male vs. female?)
- Get each team to choose a team name – write these on the board
- Ask each team to think of fifteen questions: ten of these to be course-related, five to be trivia
- Each team takes it in turns to ask the other a question
- Score as follows: 3 points for a correct answer, 1 point if the questions is far too difficult (e.g. who won the Lithuanian hockey league cup in 1946), 0 if question can't be answered

Your decision is final!

9. Note review
Purpose: To review notes and develop note-taking skills; to review a lecture

Note: requires that individuals have notes with them – perhaps from a lecture preceding the PAL session

- Ask each person in the class to work individually to produce a summary of their lecture notes
- Ask that they provide either (a) a bullet-point summary of the lecture or (b) a mind map of the lecture
- Put the class in pairs and get them to compare their lecture summary
- Ask the class the differences they found between their own and their partner's summary
- Using the class's summary develop an overview of the lecture on the board
- Discuss effective note-taking techniques

The choice of each of these will of course depend on what is most relevant and important to the students at any point in time as it emerges through discussion and other activities

10. Activities making use of students' notes

The following are some ideas for activities which make use of, and emphasise the importance of, students' notes. They can all be used to aid review of lecture and check for completeness of notes. To ensure everyone gets involved, you could divide the group into three sub-groups: one group constructs an overview; another group writes a summary paragraph; and the final group generates some test or exam question. Use the last 20 minutes of the PAL session to get the whole group to join in discussion, answering the test or exam question.

(a) Constructing an overview

Aim: to get students to understand the key ideas of a lecture or subject area; to prepare for short answer exams; to develop note-taking skills.

Use: from session 3 onwards, regularly.

Directions:

Divide students into pairs and tell them you want them to use their notes to summarise a lecture (or subject area). Get each pair to summarise their lecture as an overview. Tell them (and write them on board) that they should summarise the lecture by using:

- Headings
- Sub-headings
- Main points
- Examples
- New terms
- Queries/puzzles

Ask students to generate an overview in pairs. After about ten minutes or when completed, ask each pair to share their overview with another pair. If you wish, pairs can then share their ideas with the class.

To close, you may wish to ask a student to come to the board and summarise the main points from the lecture, encouraging other students in the class to provide the ideas to be written on the board.

(b) Writing a summary paragraph
Aim: to get students to understand the key ideas of a lecture or subject area; to prepare for short answer exams; to develop note-taking skills.

Use: from session 3 onwards, regularly.

This activity is similar to the previous one, except you are asking students to summarise a lecture in a paragraph rather than as a structured overview. You may wish to ask some pairs to do the first activity, and ask other pairs to do this activity.

Directions:
Divide students into pairs and tell them you want them to use their notes to summarise a lecture (or subject area). Get each pair to write a one paragraph summary of their most recent lecture. After about ten minutes or when completed, ask each pair to then share their summary paragraph with another pair. If you wish, pairs can then share their ideas with the class.

To close, you may wish to ask a student to come to the board and summarise the main points from the lecture, encouraging other students in the class to provide the ideas to be written on the board.

(c) Generating test or exam questions
Aim: to get students to understand the key ideas of a lecture/unit; to prepare for exams.

Use: from session 3 onwards, regularly; after a lecture has been summarised in another way e.g. activities 1 and 2.

Directions:
Show the students one or two typical exam questions in their subject area. Ask them to think carefully about what they think is required. Now ask them, individually or in pairs, to write three exam questions based on a lecture/unit. Encourage them to look at their notes whilst doing so.

Once they have done this, write three column headings on the board:

- Definition or summary questions (knowing facts)
- Analytical questions (understanding theory)
- Evaluation questions (appraising/criticising theory)

Invite a student up to the board to be scribe and ask the class to read out their questions, saying under which column each question should be. Ask the class if they agree in which column it is placed and why.

Once all (or a lot of) the questions have been placed on the board, ask the class as a whole to join in discussion answering the questions.

Reminder Checklist

- ✓ What are you doing to get your students involved in the PSLG session?
- ✓ How do you avoid re-teaching material?
- ✓ What different strategies are you using in each session to help students learn the material?
- ✓ How are you encouraging students to answer each other's questions?
- ✓ How are you phrasing questions so that students have to think about the material?
- ✓ What are you doing to encourage students to summarise and understand the key concepts of the course?
- ✓ What collaborative group study methods to you use from time to time?
- ✓ What steps are you taking to help students feel relaxed?
- ✓ How are you encouraging attendance at PSLG sessions?