LEARNING STRATEGIES

OUT LINE TEXT CHAPTER

Have students work in groups of 2-4 to make an outline using the headings from an important chapter from the text. Be sure to point out that the size and the placement of the headings are important for determining the main ideas and supporting details. After you have this "skeleton" outline of the chapter, have the students read to determine the important points under each heading. If the students have trouble determining the important points, have them turn the headings into questions and then read to find the answers. The answers are (most likely) the important points. Who, what, why, when, where, and how are good questions with which to begin. Have groups compare important points with other groups.

NOTE REVIEW

This is a method of getting the students to work together to review and augment their lecture notes in an organized way. In small groups, have the students take turns reading a portion of his/her notes. Encourage other students to interject with details missed or questions about the topic. Give students time to add information to their notes between turns. Follow up with a short discussion in which students share what note-taking strategies they find effective. Suggest that when students take notes in the lecture they include an "SI question" in the margin for the aspects in the lecture they would like to discuss in the SI session. Sometimes it is difficult to recall what those questions were if SI sessions are not right after the lecture!

PREDICT TEST QUESTIONS

Put students in groups of two or three and assign them to write a test question for a specific topic, ensuring that all topics have been covered. Ask students to write their question on the board or on an overhead for discussion (would the professor ask this question?, what is the answer?, etc.) Students will have the benefit of learning to think like the teacher and they'll be able to see additional questions that other students have written.

PREDICT THE NEXT LECTURE TOPIC

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

IDENTIFY THE "BIG IDEA"

Ask each student to tell what he or she thought was the most important concept, idea or new information they learned during a particular lecture or even a session. "if you could only take one thing from the information present, what would it be?" Ask each student to offer a different "take home." Students often feel overwhelmed by the sheer volume of information they have to deal with and this technique helps them identify and organize the information presented.

SUMMARIZE LECTURE

As a group, summarize the lecture from the previous class. You may have to provide prompts for the students. For example, "The first concept discussed was Civil Liberties and Public Policy, what did the professor highlight regarding this?" You may want to ask them to try summarizing without looking at their notes; however, if they are having a difficult time remembering, tell them to refer to their notes.

POST EXAM SURVEY

The post exam survey is a self-test for students to assess how successfully they studied for an exam. The survey can be used in an SI session after an exam to target areas on which students need to improve. The SI leader should tailor a survey to the specific class and emphasize what they feel is important. The leader should assign a specific point value to each survey question that adds up to 100. Then the leader should read each question and have the students score themselves based on the specific value of the question. After all the survey questions have been asked, the students should total their score and see how close their survey score is to their exam score. This should lead into a discussion of the most effective way to study for the next exam.

BOARDWORK MODEL

This is a method of organizing board work in order to facilitate an understanding of problem-solving strategies. The board should be divided into 4 sections:

1- Prerequisite knowledge,
2- Mathematical steps,
3- Narrative of the steps,
4- Additional sample problem

Encourage one student to fill out section 1 on the board. Then, encourage two students to simultaneously complete section 2 and 3 on the board. Lastly, have another student complete the 4th section. Encourage students to use this model when studying outside of the SI session.

PEER LESSONS

Select several problems over related material. Divide the students into 4-5 groups. Give each group one problem and have them write out the solution, using their textbook and class notes, on a transparency or at the board. Have each group come up and explain the problem in as much detail as they can. Have them show their thought processes and methods used in finding the solution. The SI leader adds or corrects anything he/she feels is necessary.

GRAB BAG

This started out as a MLA grab bag where each student had to pull out a magazine, a paper, or a text book, etc. and reference it properly as if they were writing a theme paper. Other leaders realized that this idea could be adapted to objects that have to be identified and explained in a Biology session or word problems on cards in a hat for Math sessions. The options are bound only by your imagination. The intrigue, of course, is in not knowing which one you will pull out.

PAIRED PROBLEM SOLVING/THINK ALOUD

This strategy requires students to verbalize what they are thinking about as they read a passage or solve a problem. Start by pairing the students into groups, one student should be the thinker/problem solver while the other student is the listener. The thinker must vocalize every step in the reasoning process and the listener must listen and understand every step the thinker is making. The pair should be working together. Be sure the listener continually encourages the thinker to vocalize. The listener should also point out any errors. After the problem is solved, the groups should rejoin the large group and share the problem-solving process with the group.

SUMMARIZING THE PROCEDURE/STEPS

This technique reviews the process of the learning that has taken place. It is important to cover how an answer was obtained rather than just making sure the answer was correct. This technique will ensure that they will be able to satisfactorily complete more of the same type of problems in their homework or on a test.

SEND A PROBLEM

This strategy can work in pairs or individually depending on size of group. Works well in Math and Chemistry after a new concept has been taught to check for understanding.

Generate a list of problems and assign each a different problem. Have students complete Step 1. After a minute have them pass their problem to the right and then complete Step 2. Continue process until all steps are complete.

FIRST LINE ONLY

Problem-solving courses, particularly in the Sciences, are often perceived as major obstacles for many students. Frequently, students do not know where to commence or approach a problem. The First Line Only Strategy is particularly useful for students who need to be encouraged "to take the first step" towards finding the solution. In order to complete this exercise, the following is recommended: Firstly, you need to present a variety of types of problems so that the learner builds confidence in addressing the first level of the problem. Secondly, you will also need to give a strict time limit so that only the first step towards the solution is addressed,
e.g. for Calculus, *Instructions: Examine the problems below and tell how you would begin the solution to each one:*

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

STRUCTURED PROBLEM SOLVING

Identify the steps in solving the particular problem, and separate the students into groups. Because the steps for solving the problem are given, it is easier for the students to handle large complex problems and they have greater confidence. Assign them a sample problem and give them a specific time period, at the end of which the group must have reached a consensus for the answer. Ask the students to report their solution and explain the steps that led to their answer. This strategy is most helpful for larger multi step problems.

Collaborative Learning Techniques, Barkley, Cross & Major

NOTE TAKING

Make one set of notes on a topic. Then go through these notes, picking out important sentences/phrases and discarding unnecessary words. Create a new set of notes based on this. Repeat the process until you have notes with only key words and phrases. Going through the notes in this way will ensure information is taken in and when the phrase or word is looked at, it will trigger the previously learnt information.

LEARNING CELLS

To engage students in thinking about the content, encourage them to generate thought provoking questions and check for understanding.

-Students develop list of questions & answers over course material;
-Form pairs;
-Student A asks the first question and student B answers. Student A offers corrections, clarification, additional info if needed;
-Student B asks next question and student A answers.
-Process continues until all questions are answered.

Encourage students to ask more open ended questions and to vary the types of questions.

Collaborative Learning Techniques; Barkley, Cross, Major

GUESS WHO

Give the students a couple of terms/topics and encourage them to write a description of the term for others to guess. Allow the groups to work on their topics, and then let them quiz each other to see if the others can guess their term. This strategy helps the students see if they know the topic well enough to convey the main points to someone else. It not only solidifies the guessers' knowledge, but the creators' knowledge and confidence in the topic, too.

K♦W♦L

Helps students to activate prior knowledge and link to new information to make connections with what is already known.

Title 3 columns:

What I **K**now;
What I **W**ant to know
What I **L**earned.

Can be used to help focus the session on particular concepts that students are having difficulties with. Towards end of session go back to chart and have students go back to the K column to see if any info needs to be corrected, then see if there are any questions left unanswered and then complete the L column.

Ogle, 1986

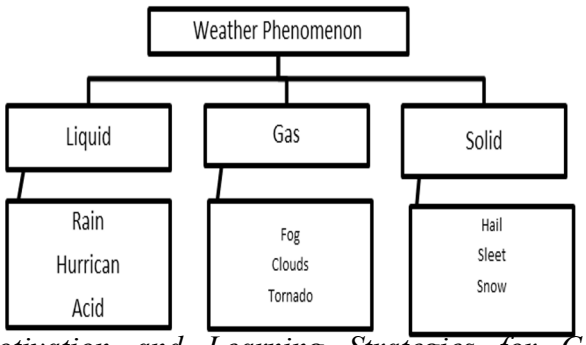
AFFINITY GROUPING

This activity can help students break down a topic to identify and classify its parts. First each student generates ideas about a specific concept and writes each item on a sticky note. Then in small groups or one large group depending on number of attendees, sort and organize slips into categories on board or wall to identify common themes. Have students create a heading for each grouping. If using small groups have each group review each other's or have them explain their categories. Make sure students are only writing one idea per sticky note.

Collaborative Learning Techniques, Barkley, Cross, & Major

HIERARCHIES

Forming hierarchies is a method to organize information which utilizes different levels. The levels are based on whether a piece of information fits into a specific group, where higher level groups are much more inclusive and lower level groups are much more exclusive. Example:



Motivation and Learning Strategies for College Success, Dembow

VENN DIAGRAM

A Venn Diagram can be used to compare the similarities and differences between two concepts, systems or theories. Two overlapping circles are drawn on the board with each circle labeled as one of the two concepts. Students will them write the similarities in the overlapping portion and then differences in the outer portion of the circles. This is a good visual technique for reviewing similar yet contrasting concepts.

MATRICES

Color	Feeling	Spanish
Red	Anger	Rojo
Blue	Sad	Azul

Information presented during lectures and the text are usually related to other topics. A matrix is an excellent way for students to see the relationships between different topics throughout the course. Reference your leader's manual for an example and exact directions for constructing a matrix. The SI leader can initially provide the framework and a few clues for completing the matrix, but eventually the students should be responsible for designing the framework and complete the entire matrix.

CONCEPT MAPPING

This strategy will look like a big spider web on the board when you are finished. Have the students break into small groups and encourage them to identify the central word, concept, or question around which to build the map. Start with a circle in the middle of the board and include the main idea within. Extend branches out from the central circle that includes all the subtopics from the main idea. Continue to add additional branches with related topics and circle groups of branches that are linked. This mapping encourages students to see the overall picture and helps bring focus away from minute details and back to the main ideas. End with an overall discussion of the topic.

3:2:1

This strategy can be very useful before an exam. Have each student come up with: 3 topics that they know well enough to "teach" to the other students, 2 topics that they do not understand and need further assistance with, and 1 possible test question. Then have each student write their 3:2:1 topics on the board. Most of the time, the students' topics will overlap allowing students to "teach" the other students who need additional assistance. Follow up with discussion of the possible test questions.

Reciprocal Questioning

This strategy improves students' questioning and reasoning skills by encouraging the students to consider the quality and type of question. The leader should prepare ten to twelve varied questions over an important lecture or section of text. Once at the session, ask the students to read or review the assigned material to understand it 100%. Then, allow them to ask you questions. If students' questions extend beyond the reading, model your think process for them. After students have finished asking their questions, begin by asking them questions directly from the text or lecture. Then move on to higher order questions (refer to leader manual pg. 30-31). Finally, lead a discussion concerning what type of questions were asked? What where the differences and similarities between the students' and leader's questions?

Memory

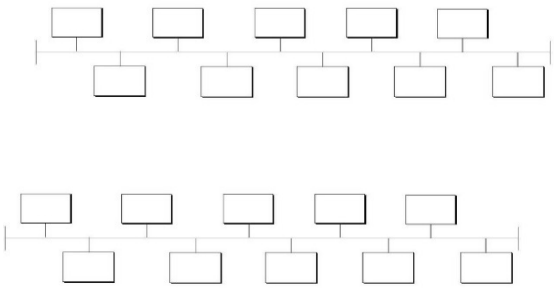
This strategy works as a great opener for an SI session. The SI leader should prepare between 12-24 note cards. Half of the note cards should have vocabulary terms and the other half should have corresponding definitions (feel free to be creative). At the session, the SI leader should shuffle the note cards and place them facedown. Allow the first student to turn over 2 cards at a time until a match is found. Once a match is found, have the student remove that pair of cards and allow another student to take a turn finding a match. Allow the students to continue taking turns until all the cards have been paired together.

Jeopardy

This is a fun way to check to see if students know the material well enough for a test or quiz. The key is being well prepared with about 30-35 "answers" at different levels of difficulty and in different categories. Form small groups and let them know the rules: No books or notes. Designate a different person to answer each question but the team can discuss the concept before giving the answer. If the question is missed, other teams can steal. Teams keep control of the board with correct "questions" or alternate from group to group.

DOUBLE TIME LINE

Construct a very general time line of events pertaining to the same time as the dates presented in the lecture. Present this general time line to the group and have them construct a duplicate time line pertaining to the lecture material directly below the one you have previously constructed.



VISUALS

Don't forget the importance of using visual study aids to emphasis important points. Visuals should be used to help students grasp the "big picture." The key idea is to visualize the information and use as few words as possible. You can also have the students explain what is happening in each visual and they can check one another's understanding.

EXAMPLE ROLE PLAYING

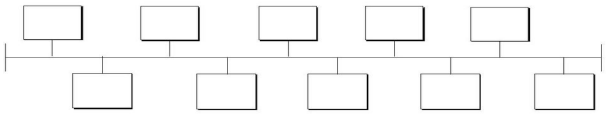
If the course has difficult, conceptual topics, have the students create their own examples that are tangible to them. This can be effective because students make up their own scenario that is unique and then they will remember it better. If possible, having the students act out the concept or propose a story will help solidify the concept and also explain it to their peers. To make it competitive, have students decide who gave the best example and presentation.

THINK ALOUD

Model for students the thought processes that takes place when difficult material is read. Use think aloud, verbalize your thoughts while you are reading orally or working out a problem. Students will understand comprehension strategies better because they can see how the mind can respond to thinking through trouble spots and construct meaning for themselves from the text.

TIME LINE

This technique utilizes visual representation to improve the processing of material. Begin with a horizontal line that represents the continuum of time. Important event are insert relative to each other, creating points on the line. Each point that denotes an event should be marked with the date, a brief description of the event, and significant person (s) involved. Then have them define or give an example of terms where appropriate.



ONE MINUTE PAPER

The one minute paper is designed to help students realize what they know or do not know i.e. 'check for understanding'. The leader should ask the students to take out a piece of a paper and write on the topic presented by the leader. Remind them it is most important that they put their thoughts on paper in their own words, not that they produce polished piece of writing. Then have each student share their response with the group. Additionally, the leader may choose to encourage conversation regarding similarities and differences between students' ideas.

INFORMAL QUIZ

The quiz should consist of 5-7 questions that are read aloud by the SI leader. The questions should require short multiple answers and focus on particulars of major points. The students should not be encouraged to talk or share answers; however, they can refer to notes or textbook. If they do not have the answer, they can write down the question. The quiz should be followed by a debriefing where the short answers to the questions are expanded upon through discussion. Allow the students to answer the questions in any order, have the student restate the question and give their answer. Allow time for other students to concur or disagree and encourage discussion.

MAKE/TAKE A PRACTICE QUIZ

Divide the students into two or more groups. Instruct each group to make a practice quiz for another group and provide answers to their own quiz on a separate piece of paper. Be sure to provide examples but allow them to be creative. Ask the groups to exchange quizzes and give them time to complete the other group's quiz. Then, have each group compare their answers with the answers that the other group previously composed. Be sure to allow for time to discuss questions that remain unclear.

TABOO

This strategy can be very useful before an exam. The SI leader should prepare multiple note cards with vocabulary or identification words and one additional related word or term. Once at the session, ask the students to divide into groups and split the note cards amongst the groups. One person in the group must **explain** the vocabulary term to the other group members without using any of the words written on the note card. The group members must then guess the vocabulary word based on the student's explanation. Have each student take a turn explaining. Once the group has guessed correctly, have them add 2 additional words to the card to make it more challenging for the next group. After all the words have been guessed, have the groups switch cards. The SI leader can sporadically join the groups and play along.

TWO LIES AND A TRUTH

This is a spinoff of an ice breaker game when you are introduced to someone new and you both tell two things about yourself that are true, and one fact that is false, and see if that person can guess which one is a lie.

The leader prepares two false statements about a topic, and one true statement. These statements are then read aloud to the students, and they are asked to identify the true statement. The false statements are then discussed to determine why they are false, and how they could be made true. (This strategy works well to present, "Which of the following statements are true?" questions from old exams).

AROUND THE WORLD

To play a game of "Around the World" is a fun and simple activity, and is especially good for exam reviews and large groups. Before the session, the SI leader should make up a number of questions with simple answers (one-word or a short phrase). The fun begins when you have two students stand up next to each other and ask a question; the first person to answer correctly moves on to the next student to try another question against a new opponent, while the other sits back down. To win the game, a student must travel "Around the World," or win against every other student in the classroom. If no one succeeds in going completely "Around the World," the winner is whoever went around the furthest from their original seat.

VERBAL VOLLEYBALL

In pairs students will review as many key concepts from class that they can remember. Student A will shout out any concept, idea, issue covered in class (make sure student explains idea), followed by student B. Students will continue volleying concepts back & forth until they run out of ideas. They cannot repeat something said by their partner. Spend approx. 8-10 min.

Once in large group ask students for 1 concept/ idea and explain it. Once all have shared, the leader can list any concept that may have been missed or needs further discussion. This is a good opener or closing activity for reviewing class material. It can engage all learners in the review and work in large or small groups.

Creative Learning: Activities & Games that Really Engage People; Robert W. Lucas