

*Active Learning Structures  
and Strategies*

# *Interactive Lecture*

1. Advanced Organization
  - Preview main points
  - Ask questions, check for prior knowledge
  - One minute essay on prior knowledge
  - Write Pair Share
2. Mini-lecture (up to 15 minutes)
3. Group exercise (5 minutes), e.g.,
  - *Think-Pair-Share*
  - *Write-Pair-Share*
  - *Structured Problem Solving*
  - *Numbered Heads Together*
  - *Believing-Doubting Activity*
  - *Check your notes with a partner*
  - *Roundtable*
  - *Pairs Check*
4. Repeat Mini-lecture and group exercise
5. Closure
  - One Minute Paper
  - Your Ticket Out
  - Group processing/reflection
  - Reflect on the lecture:
    - What was the most important point for you?
    - What questions do you have?
  - Discuss with a partner:
    - Points that were useful, meaningful, interesting, etc.
    - Questions that you have.

# 1. The Interactive, Cooperative Lecture

The Interactive or Cooperative Lecture was developed by Johnson, Johnson, and Smith (1991). Drawing upon a wealth of research on the effectiveness and appropriateness of lecturing, they have designed a format that breaks up the lecture with brief periods of cooperative activity, which they say helps counter what is proclaimed as the main problem of lectures: the information passes from the notes of the instructor to the notes of the student without passing through the minds of either one.

During an Interactive Lecture, students work in pairs. Johnson, Johnson and Smith recommend that pairs be assigned at the beginning of class. You may wish to develop a strategy so that students work with different partners each time. If your students are already working in teams, you may choose to form pairs within the different team, or even to use the entire team for some activities. The basic steps are:

1. Begin your lecture with a cooperative discussion task that includes an advanced' organizer: a preview of the new concepts to be covered. Ausebel (1963) found advanced organizers to be essential in helping students effectively organize and comprehend the material presented to them in a lecture.
2. Lecture for 10 to 15 minutes. After 15 minutes concentration declines sharply, even for highly motivated students. (Penner 1984, Stuart and Rutherford 1978).
3. Have students work in pairs or teams to answer a question, complete a discussion task, or solve a problem. Students understand and retain more working cooperatively than they do when working individually. (Johnson, et. al., 1081).
4. Call randomly on a few students. This ensures individual accountability for participation and gives more students an opportunity to participate.
5. Repeat the lecture and cooperative activity as many times as time permits.
6. Bring closure to the lesson. Have students engage in a discussion that summarizes the main points of the lecture and / or looks ahead to the homework assignment.

It's important that the discussion, task or problem that you give students to do be specific. Just saying, "Discuss the theory" isn't enough to focus their discussion productively. I suggest starting out with Johnson, Johnson, and Smith's *Formulate Share Listen Create*. Ask a question and give your students these instructions:

1. **Formulate** your answer individually
2. **Share** your answer with your partner
3. **Listen** carefully to your partner's answer
4. **Create** a new answer through your discussion

Sources: Johnson, Johnson, and Smith (1991) Kagan (1992), Cross and Angelo's Classroom Assessment Techniques

## ***2. Numbered Heads Together***

<b>OBJECTIVES:</b>	<b>Cognitive:</b> To reinforce learning. To foster the sharing of successful responses in the whole class or entire group. To decide how information will be shared among team members. <b>Affective:</b> To cooperate To teambuild To see that each team member is
<b>TIME NEEDED:</b>	3-10 minutes
<b>MATERIALS NEEDED:</b>	None, however the steps for Numbered Heads Together is included.
<b>RELATIONSHIP SKILLS NEEDED:</b>	Basic interpersonal relationship skills plus consensus seeking regarding who will share what information to the entire class or group.
<b>CONTENT/CONCEPT STATEMENT:</b>	Numbered Heads Together is a simple, low- risk, and highly motivating cooperative structure which promotes individual accountability and mutual cooperation. Through this structure participants can appreciate the value of teamwork. Members also learn that they can successfully share information with the entire class or
<b>MOTIVATIONAL SUGGESTION:</b>	The leader asks the participants to think about some of the advantages of learning or working together. The members may identify some of these reasons: <ol style="list-style-type: none"><li>1. One person may be an expert in some ability, but may not be as knowledgeable in all abilities.</li><li>2. Learning and working together can be fun</li><li>3. Learning and working together are useful social skills</li><li>4. Certain tasks cannot be accomplished alone</li></ol> The leader explains that the members will be learning a new procedure for learning and working together called, "Numbered Heads Together."

## PROCEDURE:

### Assumptions:

1. The members are divided into teams and each team is made up of four players (a quad).
2. If there are an odd number of players on one team use three or five members to allow for absentees.
3. Each team member has and knows her number. A team of three will use numbers 1, 2 and 3; A team of four will use numbers 1, 2, 3, and 4 and a team of five or more will use numbers 1, 2, 3, 4,4a and 4b.

**STEP ONE:** The leader reviews the steps of Numbered Heads Together. See those rules below:

### STEPS FOR NUMBERED HEADS TOGETHER

1. Pose a question which has several possible answers
2. Team members put their heads together discussing the question
3. Each team member prepares to state several answers to the question and share it with the whole class/group.
4. Respond by the numbers to the whole class/group.

The leader then poses a question/problem to all the teams. The question/problem should have many different possible correct responses. Here are some sample questions/problems that could be posed:

Subject/Content	Question/Problem
Mathematics	How many equations can you generate? (e.g. $x + 7x + 12 = 0$ )
Health	List as many complex carbohydrates as you can.
Literature	Name as many books as you can written by women.
American History	How many American Presidents can you name?
Physiology	Name as many bones as you can that are in the arms and legs.
Music	How many classical composers can you identify?
Drug Education	Name as many illegal drugs as you can
Business Education	If you were to start a business, what are some decisions you would have to make?
Staff Development	What are some characteristics for effective staff development programs?

**NOTE:** If desired the leader can invite four volunteers to demonstrate and model Numbered Heads Together prior to group implementation.

**STEP TWO:** The leader asks the members on each team to put their heads together to find answers to the question or problem posed. The leader may also specify a time limit; e.g. "you will have three minutes to come up with your answers; make sure that everyone on your quad has at least two answers to share."

**NOTE:** Since one of the intended objectives is to gain an appreciation for teamwork, the leader may give each team additional time to make certain that each player is prepared to respond.

**STEP THREE:** At random the leader selects a number of a player on a quad (i.e. either 1, 2, 3, 4, 4a or 4b). She then restates the original question and invites the player on each team with that number to share his answer. Thus the leader might say: "I want the number one person on each quad to raise her hand and give us an example of a  $-$ -quadratic equation."

**NOTES:** A person may pass if her example was previously stated.

If a team has only three players, and the leader calls on the number of a player who is absent, the team should decide who will answer that question.

If a team has more than four members, and the leader explains that she will only ask members 1 through 4 to respond, then the team should decide upon a procedure for including all members. A simple solution to this dilemma is for the additional members to become a variation on one of the assigned numbers, such as 4a and 4b.

## **REFLECTION/**

**PROCESS SETUP:** Here are some sample questions for reflection and processing after Numbered Heads Together has been completed:

- a. What behaviors did you notice your quad mates doing that helped you answer the questions?
- b. What should you/or your quad do differently and the same the next time we do Numbered Heads Together?
- c. What can the members of your quad do to improve how you work as a team?
- d. What should the members of your quad refrain from doing that would improve the way your team functions?

**Summary:** Use a Discussion Whip for summary or closure.

**Review/ Evaluation:**

1. Is Numbered Heads Together a cooperative structure? Explain. For what can it be used?
2. What are the steps involved in doing Numbered Heads Together?

**Alternative Strategies:**

1. After the quad members put their heads together to discuss the question posed, state this additional requirement: "Make certain that each member of your team have two different answers to the question that I just posed."
2. Let the participants create the questions for the leader to pose
3. All numbered players can respond simultaneously to the question posed by the leader. They can display their answers on cards, write on the chalkboard, and use nonverbal hand signs, etc. This structure is called, Simultaneous Numbered heads Together. For more information on simultaneous sharing strategies see pages 344-346.
4. Let each member of the quad write some review questions and their answers on index cards. Then, let that person lead her quad or the entire class in The Numbered Heads Together structure.
5. The leader can ask complex questions and invite quad members to discuss how to respond to the questions posed.

**Collegial Applications:**

Collegial groups are often asked to make presentations to others. This is often perceived as anxiety-provoking. Through using Numbered Heads Together, the collegial group can pool their resources, divide the task and practice what they will share with the audience.

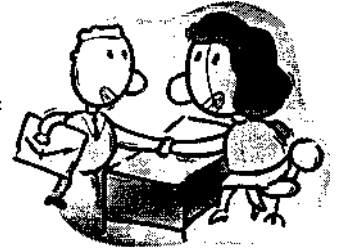
# Numbered Heads Together – In Summary

1. Instructor poses a question which has several possible answers.
2. Team members put their heads together forming possible answers.
3. Each team member must be prepared to speak for groups.
4. Instructor selects group number and "numbered head" in group.



# 3. Three Step Interview

1. Using pre-identified questions, A interviews B for the specified number of minutes, listening carefully to the responses and asking probing questions.
2. The two reverse roles; B interviews A for the specified number of minutes using the same open-ended questions.
3. Around the room, two pairs form quads with individuals introducing their partners, round-robin-style, by sharing at least one for their responses to the given question(s).



## Questions for Initial Interviews in a Writing Course

- \* Name?
- \* How do you feel about writing?
- \* Home town?
- \* Major?
- \* What kind of writing do you routinely do?
- \* When's your birthday?

\*\*\*\*\*Extension question if time remains\*\*\*\*\*  
What do you hope to gain from this experience?

## Questions for a Chapter Review in a Biology Course

Before each flu season starts, you get an influenza vaccination. This year you come down with the flu anyway. What do you suppose happened? There are at least three explanations.

\*\*\*\*\*Extension question if time remains\*\*\*\*\*

Hernando bought a bumper sticker that read, "Have you thanked your resident bacteria today?" Explain why he appreciates the bacteria that normally reside on the body's skin and mucous membranes.

## Questions for a Chapter Review in a Financial Accounting Course

How is the if-converted method used in calculating diluted earnings per share?

\*\*\*\*\*Extension question if time remains\*\*\*\*\*

How are earnings per share figures reported on the income statement?



4. **Turn to Your Neighbor:** Three to five minutes. Ask the students to turn to a neighbor and ask him/her something about the lesson; to explain a concept you've just taught; to summarize the three most important points of the discussion, or whatever fits the lesson.
5. **Three-Minute Review (Kagan, 1990):** This activity can be used at any time during the lecture and is a quick and easy method of reviewing what has just been covered in an activity. First, teams review what they have shared. Second, they ask each other questions to clarify. And third, students share answers. Three minutes are allotted for this review. Afterward the instructor can ask teams to share questions that have not been answered by their team discussions.
6. **Think-Pair-Share:** This is a three step paired cooperative structure. During step one, each member individually and silently thinks about a question or problem posed by the teacher for about five to ten seconds. In the second step, two members are paired to exchange and discuss their responses. During step three, when the teacher signals, the partners turn to another set of partners and the thoughts are shared among those four students. The teacher may ask for individuals to give team reports.
7. **Write - Pair - Share (Lyman, 1981):** This cooperative activity is another variation of the think-pair-share technique. The instructor asks a question or poses a problem. Students are then given several minutes to write an individual response. Alternatively students can bring their written response to class a part of a "ticket-in" homework assignment. Students pair up and share or read each other's responses and then partners share their responses with teams or with the whole class:
 

WRITE-	Students write their answer to a question
PAIR-	Students share their answer with a partner
SHARE-	Students share with the class
8. **Roundtable (Brainstorming):** Each group is given one sheet of paper on which to record different responses to a question posed by the teacher. Each quad member is invited to write one new response to the teacher's question on the quad's paper. The paper is then passed around the quad in a clockwise or counter-clockwise fashion. A student that does not have a novel response passes the paper to the next student. The paper may be passed several times around the quad. A more sophisticated form of Roundtable has students passing around four sheets of paper with each paper posing a different question
9. **Roundtable (Recording):** The teacher gives each group a list of questions or problems. The table discusses each question one at a time and reaches a consensus on an answer. The role of recording the answer on one sheet of paper rotates around the table, one question at a time.
10. **Focus Trio:** Before a film, lecture, or reading, students summarize together what they already know about the subject and come up with questions they have about it. Afterwards, the trios answer the questions, discuss new information, and formulate new questions.

**11. What We Know:** In this exercise, teams are presented with a sheet of paper divided into three columns. Teams are given a chance to brainstorm to come up with what they already know about a given topic. They then generate questions that they would like to have answered. The instructor may want to use this information as an aid in designing the lecture material for that section of the course. After the lecture the team gets together to discuss what they learned. If the instructor is teaching an upper division psychology course, they may want to use "What We Know" to determine the information the students have on a particular topic upon entering the course.

What We Know	What We Want to Know	What We Learned
A variety of factors influence intelligence	How much do heredity and environment affect intelligence?	Research studies on the effects of heredity and environment

**12. Team Question and Answer:** This is a review cooperative learning structure. A student may pose a question to the teacher or the class only when the members of his/her group does not know the answer or have different answers to that question. The teacher can add the following rule: A student may ask the teacher a question (a) when his/her teammates do not agree upon an answer and (b) after consulting with another squad.

**13. Reading Groups:** Students read material together and answer the questions. One person is the Reader, another the Recorder, and the third the Checker who checks to make certain everyone understands and agrees with the answers. They must come up with three possible answers to each question and circle their favorite one. When finished, they sign the paper to certify that they all understand and agree on the answers.

**14. Ticket-In, Ticket-Out:** "Ticket-ins" and "ticket-outs" refer to short assignments that are either due at the beginning of class, therefore a "ticket" to get into the classroom, or may be handed in at the end of class, a "ticket" to get out of the class. Instructors often assign tickets as a way to encourage critical thinking, by asking students to consider controversial issues in psychology, or to apply what they've learned to their everyday life experiences. Although this active learning technique is not inherently cooperative, the "tickets" can be used as a starting point for a variety of cooperative structures. For example, after collecting ticket-in assignments, students may be asked to do a pair-share technique.

**15. Dyadic Essay Confrontations (Sherman, 1991):** The instructor begins by assigning readings to the students, such as a chapter of the text, or an article. Students must complete the following four steps outside of class time:

1. Students read and reflect on the assigned material
2. Students form an essay question
3. Students prepare a model answer to their own question
4. Students bring a copy of their essay questions and their model response on separate pages

During class time, students pair with another student and exchange essay questions.

Each student writes an answer to the essay question received from his/her partner. Pairs discuss their answers with the model responses looking for similarities and differences. Dyadic essay confrontations can be used as a method to review for exams as well.

- 16. Homework Checkers:** Have students compare answers, discuss any they have not answered similarly, then correct their papers and add the reason they changed an answer. They make certain everyone's answers agree, then staple the papers together. Teacher grades one paper from each group; all members receive that score.
- 17. Composition Pairs:** Student A explains what s/he plans to write to student B, while Student B takes notes or makes an outline. Together they plan the opening or thesis statement. Then Student B explains while Student A writes. They exchange outlines, and use them in writing their papers.
- 18. Problem Solvers:** Give groups a problem to solve. Each student must contribute to part of the solution. Groups can decide who does what, but they must show where all members contributed.
- 19. Board Share:** Teams are given a section of the board... or chart paper, on which to write team thoughts regarding a team brainstorm, team opinion, or possibly a response to a teacher question. Individual team members can be held accountable by issuing different colors of markers to each in order to monitor student involvement- especially if all team members are expected to write. This activity is often followed by a team oral report.
- 20. Pairs Check (Kagan, 1992):** This technique assumes standard four-member teams. The instructor gives several problems. Teams divide into A-B pairs. The A's do the problem while the B's coach. Then B's do the problem while A's coach. Pairs return to their teams where they check answers with the other pair.
- 21. Computer Groups:** Students work together on the computer. They must agree on the input before it is typed in. One person in the Keyboard Operator, another one the Monitor Reader, a third the Verifier (who collects opinions on the input from the other two and makes the final decision.) Roles are rotated daily so everyone gets experience at all three jobs.
- 22. Send/Pass a Problem:** Teams begin by generating a question or problem. These questions/ problems can also be provided by the instructor. The problem should be listed on one side of a sheet with the correct answer listed on the back. The problems are passed to another team. The new team answers the question and if they disagree with the answer created by the first team, they can add their comments to the back. This exercise can be used to review for an exam. As a variation, open-ended or controversial questions can be used to begin a debate or discussion. Problems can be rotated through all teams in the room or just on other team depending on available time and class size.
- 23. Team Consensus:** Each team member share information and listens while other team members are sharing. After the information is presented, the team members try to

reach a consensus by determining what their answers have in common. Teams share their answers with the class.

- 24. Coop Cards:** This flashcard activity can be useful for concept review at the end of a chapter, or in reviewing and studying for an exam. Students create flashcards on assigned topics before coming to class. On the front side of the card is a question, and on the backside is the correct answer. Students partner up, with one student designated as the "teacher" and the other student as the "learner." The teacher starts by showing each card and reading aloud both sides to the learner. The second time through the cards, the teacher shows only the question side of the card and asks the learner for an answer, the teacher gives some helpful information and retains the card. During the final step the teacher reads the questions without showing the card.
- 25. Inside/Outside Circles:** This technique is especially useful as an exam review structure. Students begin by becoming the "expert" on the answer to a question. Students in the class number off (e.g. 1, 2, 3, 4, etc.). The even numbered students form a circle facing outward. These students are called the "inner circle." Odd numbered students form a circle around the inner circle facing inward, so each person in the outer circle is facing a student from the inner circle. The students take turns quizzing each other with their questions. Since they are experts on the answer to their question, they can help their partner and teach them the correct response. Each time the team says "rotate," the outer circle moves on space clockwise, so each person is facing a new person to quiz. The rotation continues until each student in the outer circle has met with each student in the inner circle.
- 26. Line-ups:** The instructor asks students a question with an answer that can be ordered (e.g. numerically or alphabetically). Students order themselves and find their exact place in line. The instructor can ask students to share their answers to determine that they're in the correct order. Line-ups can be useful for introducing statistics including basic concepts of mean, median, and mode, as well as discussions of distributions.
- 27. Value Line:** This active learning technique is used to explain or discuss controversial topics. The instructor begins by providing a controversial statement. One end of the room is designated as the "agree" side and the opposite end of the room is designated as "disagree." Students line up according to where they stand on an issue. The instructor may then ask students to explain why they chose to stand where they are.
- 28. Valley of Values:** This is a variation of the value line technique. It is also used to introduce or discuss controversial topics. One side of the room is designated as "agree," and the other side as "disagree." The center of the room is designated as the "valley." The instructor begins by reading a controversial statement. Students who agree move to the "agree" side and student who disagree move to the "disagree" side. Students who can't decide move to the "valley." Arguments are heard from both the agree and disagree sides of the room. After hearing compelling arguments from both sides, students in the valley must make a decision and move to one side of the room.
- 29. Value Signs:** This modification of the "Valley of Values" activity that is useful for large classrooms. Not all classrooms have the physical space for students to get up and walk around. In this active learning exercise, students begin by writing "agree" on one side of

a sheet of notebook paper and "disagree" on the other side. The instructor reads a controversial statement. For example, "standardized testing is a useful tool in our educational system." Student then hold their sign up indicating their position on the issue.

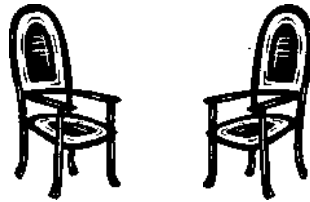
The instructor can then call on students to defend their position. After hearing arguments from both sides, the instructor can conduct a re-vote, allowing students the opportunity to change their position.

**30. Corners:** This is an active learning structure that is useful for discussing topics which naturally evoke emotionally charged reactions/ opinions. The teacher begins by raising a question that has multiple viewpoints; e.g., "what is the course of aggression?" After several answers are generated by the class, students are encouraged to join a group with others who share their view. These groups meet in different "corners" of the room. After some discussion, groups can formulate answers to questions and can share with the class.

**31. Two Stay/Two Stray (Kagan, 1992):** This cooperative technique is useful for reviewing or sharing class projects or assignments. After a team of four members completes a project, tow students on the team move to another team to review their project/assignment. The other two students stay behind and share their project with two visitors (a pair from another team). When the two who strayed return to their original team they share what they've learned on their visit to the other team.

**32. Philosophical Chairs:** See next page for materials.

## PHILOSOPHICAL CHAIRS



1. Set up the chairs with two rows facing each other. A third row is then set up at the end.
2. Listen to the statement. Decide whether you agree or disagree. Sit in Row A if you agree with the statement and Row B if you disagree. If you are undecided, sit in Row C.
3. Someone on the pro side of the argument (A) begins the discussion with an argument in favor of that position.
4. Then someone from the Con side responds to that argument, explaining why it does not sway him or her
5. The "undecided" should state their concerns or reservations at any time
6. The ground rules are as follows:

Participants should agree to be open minded rather than insisting on "standing anyone's ground"

- Anyone can change seats at will and should move to the appropriate row. (There is no limit to the amount of times one may move)
- One need not agree on all points or the merits of any specific argument to sit on one side
- Participants do not interrupt each other; listen carefully, take notes in order to remember important points
- All should enjoy the opportunity to discuss an important issue with your classmates
- All students must be encouraged to participate



# Philosophical Chairs

## *Rules of Engagement*

- ❖ **Read** the Opening Statement carefully; be sure you understand it
- ❖ **Listen** to the person who is speaking
- ❖ **Understand** the person's point of view
- ❖ **Contribute** your own thinking, offering your reasons as succinctly as possible
- ❖ **Respond** to statements only
- ❖ **Change** your mind about the statement as new information or reasoning is presented
- ❖ **Move** to the opposite side or neutral chairs as your thinking grows and changes
- ❖ **Support** the Mediator in maintaining order and helping the discussion to progress
- ❖ **Reflect** on the experience via the closing activity or assignment

# PHILOSOPHICAL CHAIRS

## SAMPLE STATEMENTS FOR DISCUSSION

1. Movies should not be rated
2. Uniforms should be required in the public schools
3. Couples should not be allowed to have more than two children
4. Chewing gum should be allowed in all classes because it gives you more energy to study
5. Treatment for alcoholics and drug addicts should be free
6. Abortion should/should not be legal
7. P.E. should be a pass/fail class
8. There is more bad than good in the world
9. All convicted murderers should get the death penalty
10. School dress codes should be abolished
11. Women who damage their babies (before birth) should go to prison
12. People with multiple life sentences should have to work them off
13. Elderly prisoners with life sentences should be freed at age 80
14. Women have achieved enough equal rights and should be satisfied
15. Smoking should be illegal
16. Thirteen year olds should be allowed to see any movie, regardless of the rating
17. People should wait until the age of 21 to get married
18. Some books should be banned
19. Skinheads should be allowed to express their views without interruption
20. Some drugs should be legalized
21. Most people on welfare are lazy
22. Students who show disrespect and display poor attitudes in school are admired by other students
23. Parents who do not put seatbelts on their children should go to jail
24. Parents should have to pay a fine when their kids skip school
25. Parents should have to pay damages when their children vandalize public or private property
26. Everyone would be a lot better off without television
27. Women only should decide the abortion issue
28. Minors should always be tried as adults

- 33. Simple Jigsaw :** The teacher divides an assignment into three or four parts and each triad or quad member is responsible for learning and teaching his/her portion of the assignment to his/her teammates. Students may be pre and post tested on their mastery of the material.
- 34. Expert Jigsaw (Aronsen, 1980):** This is a more complex cooperative structure that includes the following four steps: (1) A task or set of materials is divided into several component parts or topics. (2) Each member is given a part or topic on which to become an expert. (3) Members who have the same topics meet in expert groups to discuss their topics, analyze the data and plan how to present their findings to their teammates. (4) Members return to their original quads and teach what they have learned.
- 35. Group Definitions (Kagan, 1992):** The technique is useful for discussions of topic that may be difficult to define. The instructor begins by providing a psychological concept. For example, the instructor may use "Intelligence." Each student then writes an individual definition of the concept, in this case, intelligence. Team members compare their definitions. Then the team creates a new definition of the work that includes all of the elements mentioned in the individual definitions. Teams then share their group's definition with the class.
- 36. Group Discussion with Talking Chips:** This technique is useful when you want to manage or structure the exchange of information. Each member of the team needs a talking chip (e.g. a pen, pencil, or coin). During discussion, a team member may only share after he/she has placed their talking chip on the table. When everyone has shared (all talking chips are on the table), the members retrieve their chips and begin again.
- 37. Talking Strips:** See page for materials. Team members shuffle and then draw a number of strips. Discussion should proceed in a roundrobin fashion. If the directions on the strip don't fit the trend of the discussion at the time, a member may pass. Many variations are possible.

## Talking Strips

Give an Idea	Ask A Question
Give an Idea	Ask A Question
Give an Idea	Encourage Participation
Give an Idea	Encourage Participation
Respond To An Idea	Ask For Clarifications
Respond To An Idea	Ask For Clarifications
Keep Group On Task	Give A Praiser
Keep Group On Task	Give A Praiser
Ask For Clarifications	Give A Praiser
Ask For Clarifications	Keep Group On Task
Answer Questions	Keep Group On Task
Paraphrase	Answer Questions
Paraphrase	Paraphrase
Paraphrase	Paraphrase
Paraphrase	Paraphrase
Summarize Progress	Paraphrase
Summarize Progress	Summarize Progress
Check For Understanding	Summarize Progress

**38. Group Investigation (Sharan & Sharan, 1992):** This technique can be used as a semester project. The instructor begins by selecting topic areas and creating teams. It is best if the instructor gives specific roles/instructions to individual team members to ensure that everyone is doing an equitable amount of work. Teams carry out their investigation of the topic by research or some method of data collection. Teams meet in class to summarize their findings and prepare a report. Teams present their reports with the class, and evaluate the projects and the team process.

Step One:	Identify the topic and organize the groups.
Step Two:	Plan the learning task.
Step Three:	Carry out the investigation.
Step Four:	Summarize and prepare the final report.
Step Five:	Present the report.
Step Six:	Evaluate the project and the process.

**39. Team Question and Answer:** This is a cooperative structure used to help students review for an exam. Students review for the exam in their teams either using prepared questions or by generating their own questions. Students may only ask the teacher or class a question when no one on their team knows the answer, or when the team members disagree on the answer. Additional steps or rules may be added such as: teams must consult with a neighboring team before asking the instructor.

**40. Multi-voting or Spend a Buck (Kagan, 1992):** This activity can be useful for evaluation of ideas. For example, an instructor may want to ask students to generate ideas on how to create a culturally non-biased intelligence test. Students brainstorm individually and write their ideas on cards. Students say their ideas aloud as they place each one on the center of the table. Each student then gets four votes (small sticky dots worth a "buck" each). Students can put from one to four dots on any idea, providing the option of voting for several ideas, or putting all of their votes on a single idea. The idea with the most votes wins. This idea is shared with the class.

**41. Send A Problem:** The teacher, a student, or a group raises a question, creates a case study/scenario, or poses a problem which is sent to a group for discussion. Let us call the question/case study/scenario sent "the problem." Each group reads, analyzes and discusses its problem, and then creates a written response. Variation: The same problem is sent to two or more groups for discussion.

**42. Teach-Student Review:** This review style is based on the principle that the best way to learn something is to teach someone else about it. This review technique is simple and can be used in any class size and/or configuration. The technique requires that students partner-up with a fellow student. Assign one student the role of teacher, and the other student the role of learner. The teacher's job is to teach a concept to the learner. Allow teachers to use their notes and textbooks, and you may consider giving the teachers a

minute of "prep" time before they teach their learner. Encourage learners to ask the teachers questions, and not to move on to the next topic until they understand the concept taught to them. You can provide topics by either listing concepts on a board or overhead, or having students work through a review sheet. Teachers and learners should alternate roles after each concept for balance.

- 43. Partners' Jigsaw (Aronson, 1980):** This is a modification of the original jigsaw technique using partners rather than quads. The instructor begins by assigning two topics to the class. Within teams, each set of partners is assigned one of the two topics. Students with the same topic consult with experts from other teams. The team reunite and the partners present and tutor.
- 44. Semantic Webbing (Bromley, 1991)/ Affinity Diagrams:** There are several variations of this cooperative technique used for brainstorming and organizing ideas. The instructor poses a question or a topic to the class, and give students 3-4 minutes to brainstorm individually, recording their responses on individual scraps of paper or sticky notes. Next, students read their answers aloud and stick their notes on the table. Third, a team member silently categorizes the ideas. Finally, teams discuss names for the categories. A variation of this technique involves providing each team with an idea or concept. Each quad member then has an opportunity to write down a related fact or concept, or a question. Teams create a web of questions that can be used to begin a classroom discussion.
- 45. Structured Controversy (Johnson, Johnson, & Smith, 1991):** This is a useful technique for getting students to think critically and to learn to view things from multiple perspectives. The instructor provides the class with a controversial issue. Teams divide into A-B pairs. The A's are assigned one perspective, the B's are assigned the opposite position. Students are given several minutes to plan their argument. A's partner with B's and present their arguments. Partners have a chance to discuss the issue. Then, the partners switch roles, taking the opposite position, and must now prepare a new set of arguments. Partners share again, arriving at a consensus that can be shared with the class.
- 46. Mix 'n' Match:** Terms and respective definitions written on cards are distributed among team members. By TOUCHING ONLY THEIR OWN, team members are challenged to place each term next to the correct definition. They may move teammate pieces only by suggestion and team agreement.
- 47. Red Pen:** See next page for materials.

## Red Pen (15-30 minutes)

Discipline(s) All

### Summary

- ❖ Red Pen is an excellent technique for test correction and review. It makes students work together in a cooperative manner while reviewing test material.

### Details

1. (2-4 minutes) Forming the groups (*FACE TO FACE PROMOTIVE INTERACTION*): Group size of three is ideal but in actuality needs to be related to the number of test questions and how you would like them divided. Make sure students are in a workable formation. They **MUST** be eye-to-eye and knee-to-knee. Ask the students to self-select titles such as: *Mango, Pineapple, and Coconut*.
2. (1 minute) Role Assignments (*POSITIVE GROUP INTERDEPENDENCE*): Once the fruits are picked, assign duties in accordance: *Mango*: materials (procures one red pen per member and one overhead pen per group). *Pineapple*: papers (procures members' test papers from the folder). *Coconut*: checker (ensures that only red pens are used on the ungraded tests).
3. (1 minute) Establishing the Rules: Students are advised that they may **NOT** make any changes to their tests. However, with the red pen, they are allowed to write **ANYTHING** and everything on the tests that will enable them to learn from their mistakes or assist teacher in rendering partial credit. (There will be **NO** point values attached at this time!) Allow a few seconds for students to look over their own tests and/or check answers; they're going to, anyhow.
4. (1-3 minutes) The question please (*POSITIVE GROUP INTERDEPENDENCE*): Pass out one acetate sheet per group. This sheet will indicate the number(s) of the problems their group will do for presentation. In cases of uncontrollable sobbing, permit intergroup switching of acetate sheets. Members **MUST** agree on the answer to their problem(s) and on the most straight-forward way of showing steps, etc.
5. (2-3 minutes) Getting the job done: The *Mango* is assigned the job of "manuscripting" the problem onto the acetate (*INDIVIDUAL ACCOUNTABILITY*). Other group members encourage and check (*POSITIVE INTERDEPENDENCE, SOCIAL SKILLS*).
6. (5-15 minutes to get through all groups) The *Pineapple* "presents" to the class via the overhead (*INDIVIDUAL ACCOUNTABILITY*). This needn't be lengthy; sometimes just placing the sheet on the overhead is adequate. Allow students time to verify answer/ask questions before removing the sheet.
7. (1-2 minutes) Clean-up (*POSITIVE GROUP INTERDEPENDENCE*): *Pineapple* collects papers (tests) and returns them to folder. *Mango* collects material (pens, acetate sheets).
8. (1-2 minutes) Conclusion and processing (*PROCESSING/CLASSROOM RESEARCH*): Pass out process cards. Have students fill out and turn in. *Coconut* is in charge of thanks (*SOCIAL SKILLS*); all members need to thank each other for assistance in the group task.

- 48. Role Playing:** role playing can be an effective technique for students to practice material from specific perspectives. For example, you could assign each member of a quad team to a different personality theory (e.g. Freud, Jung, Cattell, Rogers). Give students time to research their assigned topic. Teams can then engage in a role playing exercise where the instructor provides a list of key questions (e.g. where does personality stem from? How should personality be measured?) students then answer the questions as if they were the assigned psychologist. There are several modifications that can be made for large classes. One option is to assign each group to a topic, such as a personality theorist. Groups then send a representative to the front of the room where the class observes a role playing exercise with group representatives from the whole class. Or, the instructor may ask students to partner with the person next to them to engage in a role playing exercise.
- 49. Jeopardy Review:** Modeled after the popular television show, the "jeopardy" review utilizes a game-show format to help students master course material. To use this review method you will need the following materials: prepared review questions varying in degree of difficulty, transparency master LA, transparency markers, and small cardboard squares. I divide students into teams, usually by seating rows. Using Transparency Master IA and transparency markers, you can easily create a jeopardy game board. Write-in topics across the top to represent six categories of study. You can either title the categories by chapters (Chapter 1, Chapter 2, etc.), or by topic (the peripheral nervous system, brainstem, parts of the neuron, etc.). Play begins by a player from team #1 selecting a topic and a monetary amount. For example, "I'll take the brainstem for 20." You then read a moderately easy review statement/question that you've prepared that deals with the brainstem. For example, "The part of the brain responsible for sleep and arousal." Call on the first raised hand. If the answering player is correct, their team receives the 20 points, if incorrect, they lose 20 points. You can keep track of team scores on the board. After the brainstem question for 20 points has been answered, cover that square on the transparency to indicate that it is no longer an available option. Play continues until every square on the board is covered. Similar to the television show, you may also want to hold a final round of jeopardy. After final scores are tallied, prepare a rather difficult question for the teams to answer. Give the teams several minutes to think about their answer, write it down, and wager a sum of their earnings. Teams read their responses aloud to the class along with their wagers. You may choose to give the winning team extra credit points, or a small prize such as candy or pens; however, most students enjoy the activity even when there is no reward for winning.
- 50. Password:** Another game-show style review method is played similar to a combination of charades and password. To play the game you will need to fill a large bowl with folded pieces of paper containing the names of important concepts that will be covered on the exam. You may either generate these terms yourself prior to class by passing out several blank slips of paper to each student. Have them write down the name of a person, theory, or concept from one of the chapters that will be covered on the exam. They should then fold the slips in half and toss them into the community "bowl." The class is then divided into teams. This exercise works best with 3-4 teams, so the number of students on each team will depend on your class size. The starting team selects one student to give the clues. The clue-giver should stand close to the bowl of concepts and face their group. The object of the game is for the clue-giver to get their team to guess the concept written on the paper without using the words that are written. They may give other clues, they may



even use physical actions, but they cannot say the term (see example below.) No other teams may guess except the clue-giver's team. When the team has correctly guessed the term, the clue-giver reaches into the bowl and selects a second term. Play continues until one minute has passed. At that time, the number of correctly guessed responses is recorded and the play is moved to the next team. Students are not allowed to "pass" on a term. If they don't know the term they must try to use other clues that will help the team to guess the correct answer.

Sample Term: Freud

Sample Clues: Male Psychologist

Studied the  
unconscious Deceased  
Oedipus complex  
Psychoanalysis Used  
talk therapy

The team with the most points after a determined number of rounds is the winner.

Many of these descriptions are adapted by Melinda Rudibaugh from Spencer Kagan (1990), Cooperative Learning: Resources for Teachers, San Juan Capistrano, CA: Resources for Teachers.

# Who's on First

## Round Robin Starters or Ways to Pick Person #1

- ❖ Last/first name that begins with a letter closest to the beginning of the alphabet
- ❖ Last digit in phone number is the lowest/highest number
- ❖ Person with most buttons on your shirt
- ❖ Greatest number of pockets
- ❖ Smallest/Largest street address number
- ❖ Birthday is closest to today
- ❖ Most letters in last/first name
- ❖ Most coins with them
- ❖ Number of plants in house
- ❖ Most number of pets
- ❖ Most recently finished reading a book
- ❖ Stayed up the latest last night
- ❖ Traveled the farthest over last break
- ❖ Longest/shortest hair
- ❖ Wearing most jewelry
- ❖ Most recently rented a video
- ❖ Took photos most recently
- ❖ Has been to the movies most recently
- ❖ Has visited a museum most recently
- ❖ Watched the most/least TV last night
- ❖ Most recently bought a CD
- ❖ Played an instrument most recently
- ❖ Listened to music most recently
- ❖ Shortest pinky
- ❖ Exercised most recently
- ❖ Tallest/shortest
- ❖ Watched sports on TV most recently
- ❖ Mowed the lawn most recently
- ❖ Most/least brothers/sisters
- ❖ Wearing the most of a selected color ("Person with most blue on will be person #1")

