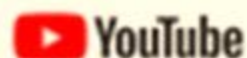




# An Explanation of Active Learning for Students



Gabriel E. Guzman

Active Learning...  
the approach to learning WELL!



THE PYRAMID OF LEARNING



EDGAR DALE (1912-1985)

We remember about:

10%

20%

50%

70%

READING YOUR BOOK AND  
ATTENDING LECTURES ONLY  
TAKES YOU THIS FAR.

"PASSIVE"  
LEARNING



TO HELP YOU  
GET THERE



BENJAMIN BLOOM (1913-1990)







# Active Learning

## Active Learning in Practice: Think Pair Share

Planning an active learning activity is limited only by your imagination. See how two active learning activities can be easily modified to a range of class contexts.



THINK



PAIR



SHARE

### Notes

- › Avoid asking simple/recall type questions: this activity works best when students are challenged to think through a more complex or complicated idea.
- › The benefits of the 3 step process are two-fold: first, students are generally more comfortable presenting ideas to a group with the support of a partner; second, students' ideas have become more refined through this three-step process.



SMALL CLASS



LARGE CLASS



ONLINE



# Think Pair Share variations





# BRAINSTORMING

## Active Learning Strategies

**Audience Polling:** Using technology such as Poll Everywhere, presenter poses multiple choice questions to gauge learner understanding.

**Brainstorming:** Introduce a topic or problem and then ask for student input. Give students a minute to write down their ideas, and then record them on the board. For example, “What are possible safety (environmental, quality control) problems we might encounter with the process unit we just designed?” Could be a brainstorm topic in an engineering class.

**Case Studies:** Use real-life stories that describe what happened to a community, family, school, industry or individual to prompt students to integrate their classroom knowledge with their knowledge of real-world situations, actions, and consequences.

**Clarification Pauses:** This is a simple technique aimed at fostering “active listening”. Throughout a lecture, particularly after stating an important point or defining a key concept, stop, let it sink in, and then (after waiting a bit!) ask if anyone needs to have it clarified. Or, ask students to review their notes and ask questions on what they’ve written so far.

**Cooperative Groups in Class (Informal Groups, Triad Groups, etc.):** Pose a question on which each cooperative group will work while you circulate around the room answering questions, asking further questions, keeping the groups on task, and so forth. After an appropriate time for group discussion, ask students to share their discussion points with the rest of the class.

**Games/Simulations/Active Review Sessions:** The instructor poses questions and the students work on them in groups. Then students are asked to show their solutions to the whole group and discuss any differences among solutions proposed.

**Interactive Lecture:** Instructor breaks up the lecture at least once per class to have all of the students participate in an activity that lets them work directly with the material. Students could observe and interpret features of images, interpret graphs, make calculation and estimates, etc.

**Jigsaw Discussion:** In this technique, a general topic is divided into smaller, interrelated pieces (e.g., the puzzle is divided into pieces). Each member of a team is assigned to read and become an expert on a different topic. After each person has become an expert on their piece of the puzzle, they teach the other team members about that puzzle piece. Finally, after each person has finished teaching, the puzzle has been reassembled and everyone in the team knows something important about every piece of the puzzle.

Large Group Discussion: Students discuss a topic in class based on a reading, video, or a problem. The instructor may prepare a list of questions to facilitate the discussion.

Mind Maps: Creating a visual representation of the presentation to include the big picture and how ideas connect to each other (<https://bubbl.us/>)

Peer Review: Students are asked to complete an individual assignment. On the day the assignment is due, students submit one copy to the instructor and one copy to their partner. Each student then takes their partner's work and depending on the nature of the assignment gives critical feedback, corrects mistakes in problem-solving, and so forth.

Physical Activity: Taking breaks every 10-15 minutes that can include: standing up, stretching, walking the room, anything to get the blood pumping.

Pre-work: Assign students readings or activities to complete prior to class/presentation

Role Playing: Here students are asked to "act out" a part. In doing so, they get a better idea of the concepts and theories being discussed.

Self-Assessment: Students receive a quiz (typically ungraded) or a checklist of ideas to determine their understanding of the subject. Concept inventories or similar tools may be used at the beginning of the semester or the chapter for students to help students identify their misconceptions.


Think-Pair-Share: Have students work first on a given problem individually, then compare their answers with a partner and synthesize a joint solution to share with the class.

Worksheets/Study Guides: A handout that students can utilize either during lecture or while studying to help with information organization and as a checklist for topics covered.

Writing Activities such as the "Minute Paper": At an appropriate point in the lecture, ask the students to take out a blank sheet of paper. Then, ask the topic or question you want students to address; for example, "Today, we discussed conductive heat transfer. List as many of the principal features of this process as you can remember. You have two minutes – go!"

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The background features a series of concentric circles in shades of light orange and cream, centered on the left side. A white, wavy line curves across the bottom right portion of the image.

**We hope this information  
was useful!**

**Contact us and share your  
experiences!**