



## Using Active Learning Approach

### BACKGROUND

Active learning is a teaching approach to promote student engagement the learning process. Through assigned tasks that have been incorporated into a lecture or discussion, the learner considers content from various perspectives, identifies key elements or concepts, and organizes it sufficiently to share with others.

**EXAMPLES** Downloaded on 2/6/12 from University of Minnesota's Center for Teaching and Learning; modified 12/31/18

<p><b>OPENING QUESTION</b></p> <p><b>Take a moment to reflect on your experience with X.</b></p> <p><b>Consider a positive and negative example.</b></p>	<ul style="list-style-type: none"><li>• Prompts learners to make connections between what they already know (prior knowledge) and new content to which they're exposed.</li><li>• The opening of a lecture should facilitate these connections by helping students exercise their prior knowledge of the day's subject matter. The following four slides illustrate strategies which stimulate students' thinking and prepare them to learn.</li><li>• One useful strategy is to open the lecture with a question. Present an "opening question" on a PowerPoint slide, give students a moment to think about their response, and then ask a few members of the class for answers. This strategy is easy to initiate, takes very little time, works in small or large classes, and effectively focuses students' attention on the day's topic. It also provides the instructor with useful feedback on what students know and don't know about the material being presented.</li></ul>
<p><b>THINK-PAIR-SHARE (Introductory)</b></p> <p><b>Think about what you know about X.</b></p> <p><b>Turn to a peer and share your knowledge/perspective.</b></p> <p><b>Does your pair have anything to share with the whole class?</b></p>	<ul style="list-style-type: none"><li>• Engages students with material on an individual level, in pairs, and finally as a large group.<ul style="list-style-type: none"><li>○ Instructor poses a prepared question and asks individuals to think (or write) about it quietly.</li><li>○ Second, students pair up with someone sitting near them and share their responses verbally.</li><li>○ Third, the lecturer chooses a few pairs to briefly summarize their ideas for the benefit of the entire class.</li></ul></li><li>• Helps students organize prior knowledge and brainstorm questions.</li><li>• When used later in the session, the strategy can help students summarize what they're learning, apply it to novel situations, and integrate new information with what they already know.</li><li>• The strategy works well with groups of various sizes and can be completed in as little as two or three minutes.</li></ul>

<p><b>FOCUSED LISTING</b></p> <p>Take a sheet of paper and list as many characteristics of X as you can.</p>	<ul style="list-style-type: none"> <li>• Students recall what they know about a subject by creating a list of terms or ideas related to it. <ul style="list-style-type: none"> <li>○ To begin, the instructor asks students to take out a sheet of paper and begin generating a list based on a topic presented on a PowerPoint slide.</li> <li>○ Topics might relate to the day's assigned reading, to a previous day's lecture material, or to the subject of the current session.</li> <li>○ Instructors often move around the room and look at students' lists as they write, briefly summarizing major trends or themes as a way of closing the exercise.</li> <li>○ Others ask students randomly to share the contents of their lists before moving on with their lecture.</li> </ul> </li> <li>• Does not take more than a few minutes.</li> <li>• Actively engages learners with material and offers feedback that the instructor can use to tailor the subsequent presentation of material to students' needs.</li> </ul>
<p><b>BRAINSTORM</b></p> <p>What do you know about X.</p> <p>Start with your clearest thoughts then move on to those that are kind of out there or less certain.</p>	<ul style="list-style-type: none"> <li>• Like focused listing, brainstorming is an active learning strategy in which students are asked to recall what they know about a subject by generating terms and ideas related to it. In brainstorming, however, students are encouraged to stretch what they know by forming creative connections between prior knowledge and new possibilities. To initiate the strategy, the instructor asks students, via a PowerPoint slide, what they know about a topic. Students are instructed to begin with those things they know to be true and systematically work toward formulating surprising relationships they hadn't considered before.</li> <li>• Brainstorming can work well at the beginning of a lecture to gain students' attention and prepare them to receive the day's material, or it can be used at the end of a lecture to summarize and help students formulate connections between what they've just learned and the world outside the classroom. Like the previous strategies we've discussed, brainstorming can be adapted to large or small classes and can be completed in as little as a minute.</li> </ul>
<p><b>QUESTIONS?</b></p>	<ul style="list-style-type: none"> <li>• Ensure time is set aside time for student questions by adding this slide. (e.g., ~20 minutes)</li> <li>• Teacher steps back from material and interact with his students.</li> <li>• Students reflect on the material and step up with questions.</li> </ul>
	<ul style="list-style-type: none"> <li>• Gain students' attention and remind yourself to stop for questions by inserting a blank slide(s)</li> </ul>

<p><b>THINK-PAIR-SHARE</b></p> <p><b>Think about how you might use X in this context.</b></p> <p><b>Turn to your peer and discuss.</b></p> <p><b>Be prepared to share your collective thoughts with large group.</b></p>	<ul style="list-style-type: none"> <li>• Provides learners opportunity to think about and work with material just presented before moving to new information.</li> <li>• Provides instructor with information regarding how well learners have understood the content, perhaps shaping what the instructor discusses during the remainder of the period.</li> </ul>
<p><b>NOTE CHECK</b></p> <p><b>Take a few minutes to compare note with a peer.</b></p> <p><b>Summarize the most important information.</b></p> <p><b>Identify (and clarify if possible) any sticky points</b></p>	<p>The note check is a strategy in which the instructor asks students to partner with someone nearby and compare their notes, focusing on summarizing key information and locating misconceptions. Students can also generate questions or solve a problem posed by the instructor. The exercise can be completed in as little as two or three minutes.</p> <p>Some instructors find this strategy problematic because they assume that students will simply not take notes, relying instead on their peers to do the work for them. It's important to remember that students are not giving their notes to one another in this exercise but working together to fill gaps in their collective understanding of the information. In this way, instructors can help students learn good note taking skills, as well as monitor whether or not students are able to identify the key ideas in the day's material.</p>
<p><b>QUESTION and ANSWER PAIRS</b></p> <p><b>Take a minute to generate a question</b></p> <p><b>Then see if you can stump your peer with your question</b></p>	<p>Question and answer pairs is an exercise in which teams of students practice asking and answering challenging questions. To begin, the instructor asks students to partner with someone nearby. Each student takes a minute to formulate one question based on the information presented in the lecture or course readings. Student A begins by posing her question for student B to answer. Then the roles are reversed, with student B becoming the questioner. The instructor may choose to ask for a sampling of student questions, either verbally or by collecting them at the end of the period. Particularly good questions can be highlighted in subsequent lectures or used on practice examinations. The strategy is particularly useful for teaching students how to frame good questions. It can also be used to encourage students to prepare for class if the instructor asks students to formulate questions based on their reading.</p>
<p><b>TWO MINUTE PAPER</b></p> <p><b>Summarize the most important points in today's lecture</b></p>	<p>In this strategy, the instructor pauses and asks students to write in response to a question presented on a PowerPoint slide. The strategy can be used at any point in a lecture, but it's particularly useful at the end as a way of encouraging students to summarize the day's content. The minute paper forces students to put information in their own words, helping them internalize it and identify gaps in their understanding.</p>

	<p>When collected at the end of the period, the minute paper can serve as a classroom assessment technique to help instructors gauge how well students are learning the material, what they understand, and what the instructor needs to spend more time on.</p>
<b>IF YOU COULD ASK ONE LAST QUESTION WHAT WOULD IT BE?</b>	<p>Most instructors end their lectures by asking for questions. To encourage students to think deeply about the material before they leave the room, create a PowerPoint slide which asks them to come up with a final question. The instructor can choose students randomly and answer their questions in the time remaining. If collected in writing, the questions can also serve as a classroom assessment technique to help instructors judge how well their students are learning.</p>

**REFERENCES** [Prince M. Does active learning work? A review of the research. J. Engr. Educ. 2004;93:223–31.](#)

