# Active Learning Cheat Sheet

## 10 STEPS to Getting Started

1. **Create an open and safe environment.**
   How can you culitivate a welcoming environment?

2. **Set a goal for the activity.**
   What do you want students to be able to do?

3. **Choose the right exercise.**
   What do students need to do to reach the goal?

4. **Identify preparation for the exercise.**
   What do students--and you--need to do to be prepared?

5. **Consider links to other class elements.**
   How does this exercise fit within the class flow?

6. **Plan how you will introduce the activity.**
   How will you explain the rationale to students?

7. **Plan the logistics.**
   How long will it take? How will you monitor progress and ensure timely transitions?

8. **Consider how you will judge success.**
   What markers will you use, formal or informal?

9. **Just do it.**
   Active learning is productive and energizing for both students and instructors.

10. **Iterate and expand.**
    Use what works, make appropriate adjustments for what didn't, and try again.

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## 1 Create an open and safe environment.

For students to get the most out of active learning, it's important for them to view the classroom as a welcoming space where they can reveal their confusion, make mistakes, and try out new approaches to learning. Instructors can foster this kind of environment by emphasizing the role of active learning as an effective tool, the value of hearing different voices and trying new approaches, and the role that mistakes play in learning. Kimberly Tanner and colleagues have identified the value of noncontent "Instructor Talk" for these purposes.

## 2 Set a goal for the activity.

Perhaps the most important step in planning active learning is to identify your learning objective. Break your topic into bits, consider what pre-existing knowledge students bring to it, and identify what you want your students to learn and be able to do with the topic. Bloom's taxonomy and associated verbs are very useful tools for thinking through your goals, and the boxes below show examples of learning objectives that instructors may use. Be sure to write down the goal and to use language that emphasizes what students need to be able to do.

Elisabeth Sandberg asks if her students should
- practice a skill
- have an ah-hah! moment
- make an analogical transfer
- identify the salience of a concept

Shane Hutson may use active learning for students to
- elicit a common misconception
- practice setting up a problem
- practice and build intuition with an abstract technique
- convert between different representations of data or relationships
- practice interpreting a specific type of graph or diagram
- practice proportional thinking

## 3 Choose the right exercise.

Your learning objective does a lot of the work of this for you: you've identified what you want students to be able to do, so your active learning exercise gives them a chance to lead up to or practice doing it. Nonetheless, there are several pieces to consider when making this choice.
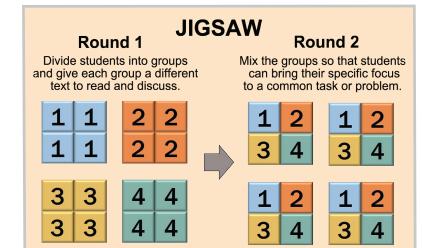
**Consider your student population.** Are your students pre-professional? They may respond well to activities that connect to their future work. Are they in a general education course? They may respond well to activities that connect to their interests outside of school. If they are chatty, they may love informal group work, while if they're quieter, they may value some solo thinking/writing time to precede discussion.

**Consider whether students will work in groups and how groups will function.** Groups of 2-4 tend to work best. For longer exercises, it can be valuable to assign roles. If groups form on the fly, be prepared to step in and assign students to groups rather than let them hang back and work individually.

**Review your options!** There are many collections of active learning approaches, such as Angelo and Cross's *Classroom Assessment Techniques*, Greg Smith's categorization according to teaching challenge and Joe Bandy's summary of discussion techniques. Some are super-simple (the mighty think-pair-share cannot be beat), others more complex, so there is a range to consider.
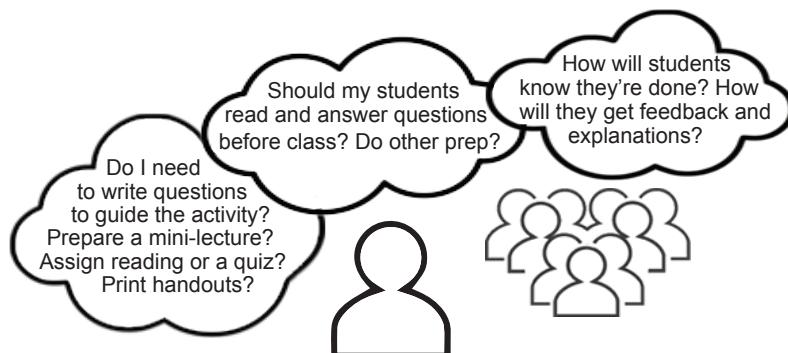
**Consider what is most challenging for your students.** Design your active learning exercise to address what's hard for them, not the easy stuff.

**Consider your constraints: time, space, class size, and your prep time.** If you are teaching a 50-minute class to 200 students, choose approaches for that setting, such as peer instruction. In a small seminar class, choose an approach that fits that context, such as a fishbowl or a jigsaw.



JIGSAW

Round 1 — Divide students into groups and give each group a different text to read and discuss.

Round 2 — Mix the groups so that students can bring their specific focus to a common task or problem.

## 4 Identify preparation for the exercise.

Ask yourself about how you and your students need to prepare.

Do I need to write questions to guide the activity? Prepare a mini-lecture? Assign reading or a quiz? Print handouts?

Should my students read and answer questions before class? Do other prep?

How will students know they're done? How will they get feedback and explanations?

## 5 Consider links to other class elements.

Ask yourself how this exercise fits in the class flow and how you'll transition before and after the exercise. In addition, ask yourself how the exercise fits with assessments in the course. Students tend to value active learning exercises that prepare them to do well in the course, but can resist exercises that feel like busywork that is disconnected from point-heavy assignments and exams.

Problem → Mini-lecture → Think-Pair Share → Exam

## 6 Plan how you will introduce the activity.

This step is especially important if this activity is out of the norm for your class. Transparency helps students understand instructor actions and helps them value their instructor's pedagogical expertise. John Dunlosky and colleagues' analysis of study strategies identifies effective learning techniques can provide a basis for describing the value of a range of active learning approaches.

## 7 Plan the logistics.

Determine how much time you will spend on the various parts of the activity and how to ensure timely transitions (music or beeping from your phone's timer can make clear that you are a conscientious steward of class time). During the exercise, monitor students' progress, ask questions if needed, and address confusion that may derail the activity. Provide feedback that summarizes key takeaways and helps students know how they did (verbally, online, or both). Consider providing a brief writing period for students to process their learning.
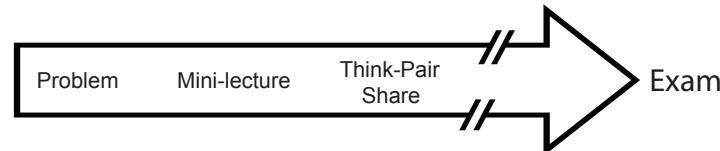
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## 8 Consider how you will judge success.

Will you assess student participation? Enjoyment? Learning? Will this assessment be formal (e.g., the percent of students who responded to a clicker question or did well on an exam question) or informal (e.g., student comments during class discussion)? Do you want to include a post-exercise follow-up, such as a minute paper, discussion post, or quiz? There is no single right way to do this, but it's useful to consider what metrics you might want to use to judge success.

% CORRECT

### Words From the Wise

- Don't do too much.
- Don't try multiple techniques at once.
- Evaluate mid-term.
- Students sometimes don't see big picture with the activity; help them.
- Use questions that are challenging but not too hard.

- Timing is hard; exercises often take longer than you expect, and groups may dislike not having time to share.
- Be sure to save time for questions.
- Don't tell students what you can't cover because of imperfect planning.
- The affective reaction may not equal the value of the activity; don't conflate.
- Students sometimes fail; it's okay. Learn from the experience.