# Examples of Common Problems: How can Active Learning Help?

| PROBLEMS | SOLUTIONS |
|---|---|
| **Problem:** Students can memorize facts but can't understand the big picture. | **Possible Solution:** Fishbowl allows students to observe other students apply concepts or model a process. Structured facilitation by you (asking questions, soliciting ideas, making observations) helps students make sense of what they have observed. |
| **Problem:** I don't know how to get students to master and apply concepts. | **Possible Solution:** Teaching concepts often requires understanding them in context. Using case studies and roleplays are a good way to provide real-world contexts for both learning and demonstrating concepts. |
| **Problem:** It has become obvious that students are not completing their readings before class. | **PossibleSolution:** AL often requires students to master factual knowledge outside of class so it can be applied in critical thinking contexts during class. iRATs and gRATs ensure students are prepared and help prequisite knowledge "stick." The quizzes tie prep work to a grade, while the group activities create social accountability. |
| **Problem:** What I'm teaching is often too complex for my students, but they have to master it. | **Possible Solution:** Chunking organizes complex material into smaller, easier-to-understand sections. A common AL strategy that leverages chunking is the 10-2 strategy, in which the instructor pauses for 2 minutes after every 10 minutes of didactic instruction. You can also use Jigsaw to "chunk" a complex topic into different components and assign them to groups. Facilitated group reporting helps you ensure everyone learns about each chunk. |
| **Problem:** My students always want to know the "right" answer, but sometimes it's not that easy! | **Possible Solution:** Fishbowl can be used to demonstrate how the seemingly "right" answer is not always right. Jigsaw, in which students work through a problem with several potential right answers. |
| **Problem:** Students seem to "get" what I'm teaching but then fail parts of the tests. | **Possible Solution:** Almost any AL strategy can be helpful here. The key often lies in getting students to apply what they think they "know." Jigsaw, fishbowl, and Q&A strategies each work in different ways to help students think deeply about content. Case studies and roleplays help them apply knowledge. Use of intentional pauses and chunking help students to process new material and reset their attention spans. |

## PREPARING THE CLASS FOR ACTIVE LEARNING

- Tell students why you're using these methods and what the benefits are.
- Set expectations early (and remind often)
- Explain consequences for students who are ill-prepared (poor scores on iRAT/gRAT; unable to appropriately contribute in Jigsaw, etc.).
- If possible, get testimonials (written, recorded, or in-person) from past students who will give tips, and positive reflections.
- Start with a small AL activity to establish an early success.

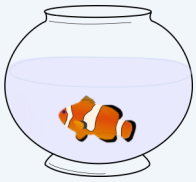
# At a Glance: Guide to Simple Active Learning Strategies

## Jigsaw

Break students into groups to discuss or solve pieces of a large case, problem, or set of questions. Then, bring them back together to create the big picture.

**Why it works:** Complex issues can be explored in a shorter amount of time when each group takes a piece. Jigsaw relies upon collective intelligence because each group can dive focus intensely on the same component (to promote diversity of answers) or on different components (e.g., in a complex system). Facilitate group discussion later helps integrate knowledge.

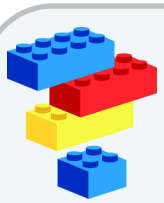
## Fishbowl



Model a case, process, or roleplay with select students while the class observes. You interrupt at key points to ask questions, make observations, elicit responses, and provide feedback to the class.

**Why it works:** Complex or controversial issues can be discussed in large group settings from various perspectives in a short period of time. Time constraints or varying skillsets of participants may make this more effective than Jigsaw, especially when you can't be present in each group to provide feedback.

## Chunk & Reset:



Organize material into easy-to-follow sections (chunks). Allow students to "Reset" their learning attention spans, which tend to become fatigued after 10 minutes.

**Why it works:** Complex content can create cognitive load that exceeds the learning capacity of students. Breaking content into meaningful units (chunks) enables students' brains to process each piece, so that students are less likely to become "lost". Chunking can be used in conjunction with the 10-2 strategy which allows students to "reset" their attention spans.

## iRAT & gRAT

Individual- and Group-Readiness Assurance Tests are usually identical, brief tests based on the materials students were expected to master outside of class. Students take the iRAT individually, followed by the gRAT, which they take as a group.

**Why it works:** iRAT and gRAT measure whether students are prepared to apply the material during class activities. Grading and the social pressure of not letting the group down serve to hold students accountable and motivate them to complete assigned work before class.

## Q & A

Ask students questions, whether open ended or rhetorical. Be silent until someone answers. Provide opportunities to ask questions (use the 10-2 strategy). Ask 5 ungraded questions at the beginning and end of each class and provide the correct answers at the end.

**Why it works:** It encourages participation and boosts students' attention because they know they may be asked about the material. The more questions they ask, the more they learn – even if someone else asks the question. Ungraded quizzes can increase student performance as much as one full letter grade.

## 10-2

Pause for 2 minutes after every 10 minutes of didactic instruction. Do nothing for those 2 minutes, or combine with the Q & A strategy.

**Why it works:** It allows students to catch up in their notes, consider the material, and generate questions. Students are generally more uncomfortable with silence than you are, and may feel prompted to participate. Ten minutes is the maximum amount of time we can attend meaningfully, and this method provides a reset.

## Cases

A good case integrates factual and conceptual knowledge and shows how it relates to actual practice (transfer).

**Why it works:** Use of this method helps build a mental model of applied concepts. Students are able to integrate multiple concepts, processes, and components into a meaningful big picture. Real-world activities provide mental models that help learners "anchor" concepts.

## Roleplay

Similar to cases, roleplays require students to apply rules and concepts by taking on the roles of experts, patients, etc.

**Why it works:** Roleplays encourage students to learn to apply knowledge, rather than memorize concepts. Students learn to think on their feet; encountering misconceptions and failures helps students avoid false confidence by showing them where they need to study more.