

Generic Problem Solving Assignment for Early in the Semester

Instructors almost always introduce new concepts and ideas during their class. As teachers, we must determine the best way to present novel ideas within our discipline. This presents an opportunity to get students involved in Problem Solving. The following example represents a Problem Solving assignment that might be given to students early in the semester. It allows students to practice all the aspects of Problem Solving in the AAC&U Problem Solving rubric, so it is a good assignment to assess a student's Problem Solving skills. It can be adapted in various ways to any discipline, but there is an expectation that instructors will use the AAC&U Problem Solving rubric **without changing the rubric**. This is crucial to the institution's ability to aggregate rubric based assessments of institutional Student Learning Outcomes from all disciplines.

Instructors could begin by creating a list of new terms, ideas, or concepts that will be presented to the class during the semester. A unique term or idea for each student in the class is not necessary, but it might be beneficial if no more than 1-2 students are working on any single term or idea. This is not a teamwork exercise.

Instructors could assign a concept or term to each student. The goal of the exercise is for the student to understand the concept themselves and then find a brief (1-2 min) approach to presenting the new term, idea, or concept that would be easily understood by their peers. Students would work through a series of steps, reflecting in written format on the process they undertake. The students would then present the idea or concept (in small groups of 4-5, virtually or in person) and determine whether their peers understand the concept or idea. Students can ask peers to explain the idea using their own words, to diagram the concept, or ask a question about the concept that would indicate whether peers understood.

It would be helpful to introduce the AAC&U Problem Solving rubric to the class, so they understand how they will be assessed (note I said assessed, not graded, because Assessment doesn't tell instructors how to grade their students). It might also be good to provide the students with a model of Problem Solving. I have recently been working with the IDEAL Problem Solver (Branford & Stein 1993). A link to a pdf version of this book is available at the Assessment website or at https://www.tntech.edu/cat/pdf/useful_links/idealproblemsolver.pdf. The IDEAL problem solving model includes the following steps...

I = Identify problems and opportunities

D = Define goals

E = Explore possible strategies

A = Anticipate outcomes and Act

L = Look back and Learn

The students document, in writing, how they worked to understand the new term, adopted the goal of presenting the term to peers in an easily understood format, explored 3-4 possible approaches, anticipated which approach might be most effective, used the best approach to present the new concept to peers, and determined whether their peers understood the new concept. The written record will be the artifact that students upload to LiveText. Instructors can then use the AAC&U Problem Solving rubric for assessment. Below is the actual assignment for the students.

The Student Becomes the Teacher

Every instructor introduces new concepts and ideas to their class. Each instructor must evaluate several possible approaches to introducing new concepts and ideas. An instructor then chooses what they believe will be the best approach and presents new material to the class. Instructors likely try to determine whether the class understood the new concept, either by asking questions in class, creating a homework assignment, or testing comprehension with a quiz or exam.

You are being asked to work through the same process. Your goal is to find the best approach to introducing a new concept to your peers. This is an opportunity to practice Problem Solving skills. Your instructor will provide you an idea, term, or concept. You can explore the concept using your textbook, Google, Wikipedia, or any other resource, so that you come to a clear understanding of the idea. Then, address the following three items in a Word document...

1. Write an explanation of the new idea, concept, or term and identify the resources that helped you understand it?
2. What problems or challenges do you anticipate in teaching this new idea to your peers?
3. What is the level of understanding you expect from your peers once you introduce the new idea and how will you determine level of peer understanding?

After identifying the challenges to teaching the new idea to your peers and articulating the expected level of understanding, imagine ways that you might explain the idea. Those ways might be an exercise, a case study, a diagram or figure, an infographic, or some other approach. After imagining 3-4 possible approaches to teaching the new idea to peers, document your thoughts by addressing the following two items in the Word document...

4. List 3-4 different possible approaches to introducing the new idea to your peers.
5. Which do you think will be the best approach? Explain why it might be the best approach.

Create the diagram, figure, or exercise and prepare a 1-2 min presentation (virtual or in-person) for your peers using the best approach you previously identified. Present the idea to a small group of peers. After presenting the new idea, determine whether your peers understood the new idea to the level you expected. You might ask peers to explain the idea using their own words, to diagram the concept, or ask a question about the concept that would indicate whether they understood. Then, address the following two items in the Word document...

6. Did students understand the idea as well as you expected?
7. If you were going to do the approach again, what would you change about your approach and why would you change?

When you have answered these seven questions, upload the Word document to LiveText, so your instructor can assess the assignment with the Problem Solving rubric.