

Problem Project Grading Rubric

Key Elements	1 Point	0 Points
Problem design - structure	Problem includes at least one key idea from three of the five conceptual groups.	Problem does not include the appropriate selection of key ideas – either there are not enough, or they are not from three different groups.
Problem design - clarity	The problem statement is clear, has an obvious goal, and includes enough information to solve the problem.	The problem statement is difficult to follow or does not provide enough information to solve the problem.
Problem solving strategy	Proper use of the four -step problem solving method is demonstrated.	The four-step method is not used at all, or it is used incorrectly.
Physics concepts	Key ideas were correctly identified, no unrelated ideas were identified as “key ideas”	No key ideas identified, or many unrelated concepts were included along with the key ideas
Physics applications	Appropriate equations were used for each step.	Appropriate equations were never or rarely used.
Math	No major mathematical misconceptions or arithmetic errors	Evidence of clear mathematical misconceptions, major or frequent arithmetic mistakes.
Assessments	Assessments are well-reasoned and include a unit check and at least one of the four strategies: using physical intuition and familiar values, solving the same problem a different way, evaluating the formula, examining the extremes.	No assessment attempt was made or the assessment reasoning is nonsensical or circular.
Reflection – key ideas	Reflection clearly states motivation for selecting the key ideas used in this problem.	Reflection does not include why key ideas were used, or is incomplete or unclear.
Reflection – challenges	Reflection discusses challenges in solving the problem, either actual or hypothetical.	Reflection does not include any discussion of challenges in the problem.
Reflection – assessing the concepts	Reflection includes a thorough and thoughtful discussion of how solving this problem might demonstrate success in the course’s learning goals.	Reflection contains no insights into how this problem demonstrates success in the learning goals, or is only a surface-level examination (e.g. just repeating the key ideas used).

Points: ____/10

Final grade:

- 0-5: Unsatisfactory
- 6-8: Satisfactory
- 9-10: Excellent